

Review of Operations and Complaints

July 2 – September 30, 2020 at East Hampton Airport (HTO)

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Agenda

- Analysis Overview
- 2020 Implementation Period Operations
- 2020 Implementation Period Complaints
- Discussion

Analysis Overview

Analysis Overview

- Collected complaint and operations data associated with HTO for 2020 Implementation Period (July 2, 2020 - September 30, 2020)
 - HTO Operations data collected from Vector Noise and Operations Management System (VNOMS)
 - Complaint data collected from PlaneNoise and Air Noise Report
 - Includes complaints transmitted to PlaneNoise from Airnoise.io system
 - Data sources are consistent with prior analysis conducted by HMMH at HTO for 2015-2019 Implementation Periods
- Evaluate 2020 HTO complaints and operations trends against 2015-2019 Implementation Periods

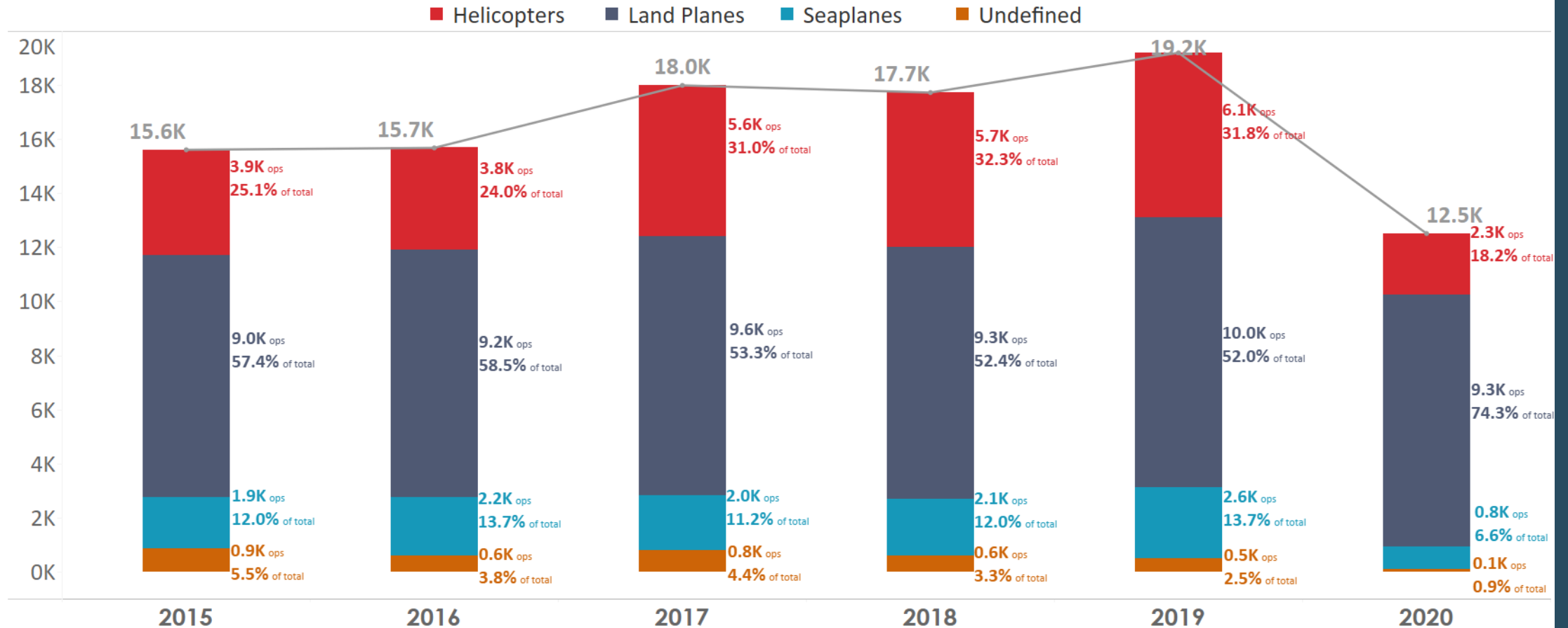


2020 Implementation Period Operations

Operations Top-Level Observations

- Comparison between 2020 and 2019 Implementation Periods:
 - Overall activity decreased by 6,686 operations (-35%)
 - Decreases in operations across all categories
- Comparison between 2020 and 2015 Implementation Periods:
 - Overall activity decreased by 3,097 operations (-20%)
 - Decreases in operations in all categories except Land Planes
 - Land Plane operations increased by 4% (343 operations) from 2015
- Overall operations increased from 2015 to 2019, but in 2020 were slightly less than overall operations in 2015

Total Operations and Operations by Fleet Mix: 2015-2020 Implementation Periods



Note: Curfews were in effect in 2015 and 2016

2020 Implementation Period Complaints

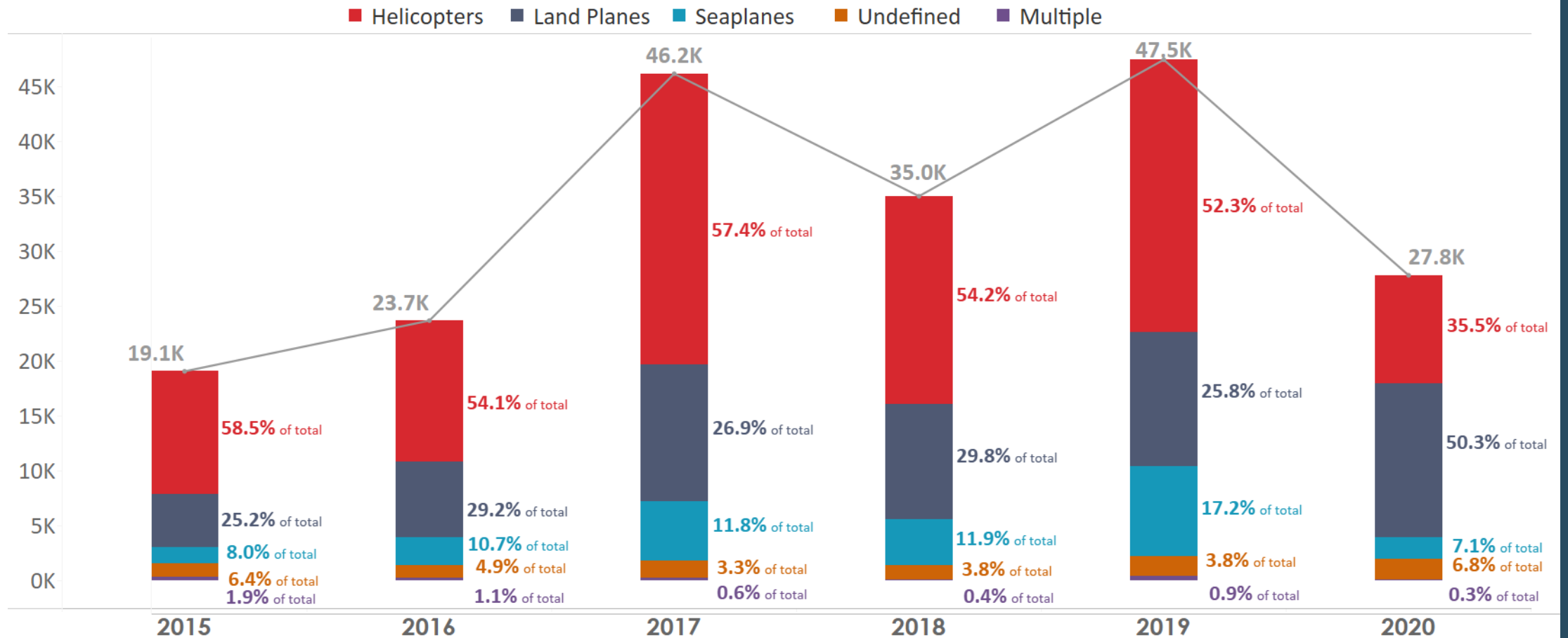
Complaint Reporting Systems

- PlaneNoise
 - Address-based complaints
 - Can record complaints via web, e-mail, fax, mobile app, and phone
 - Complaints from the Airnoise.io system available in the PlaneNoise system on July 23, 2019
- Air Noise Report
 - Complaints can be filed based on:
 - Location of an aircraft using Automatic Dependent Surveillance Broadcast (ADS-B) or Mode-S technology (Mapped Complaints)
 - Address (Manual Complaints)
 - Utilizes a web portal for complaint entry

Complaints Top-Level Observations

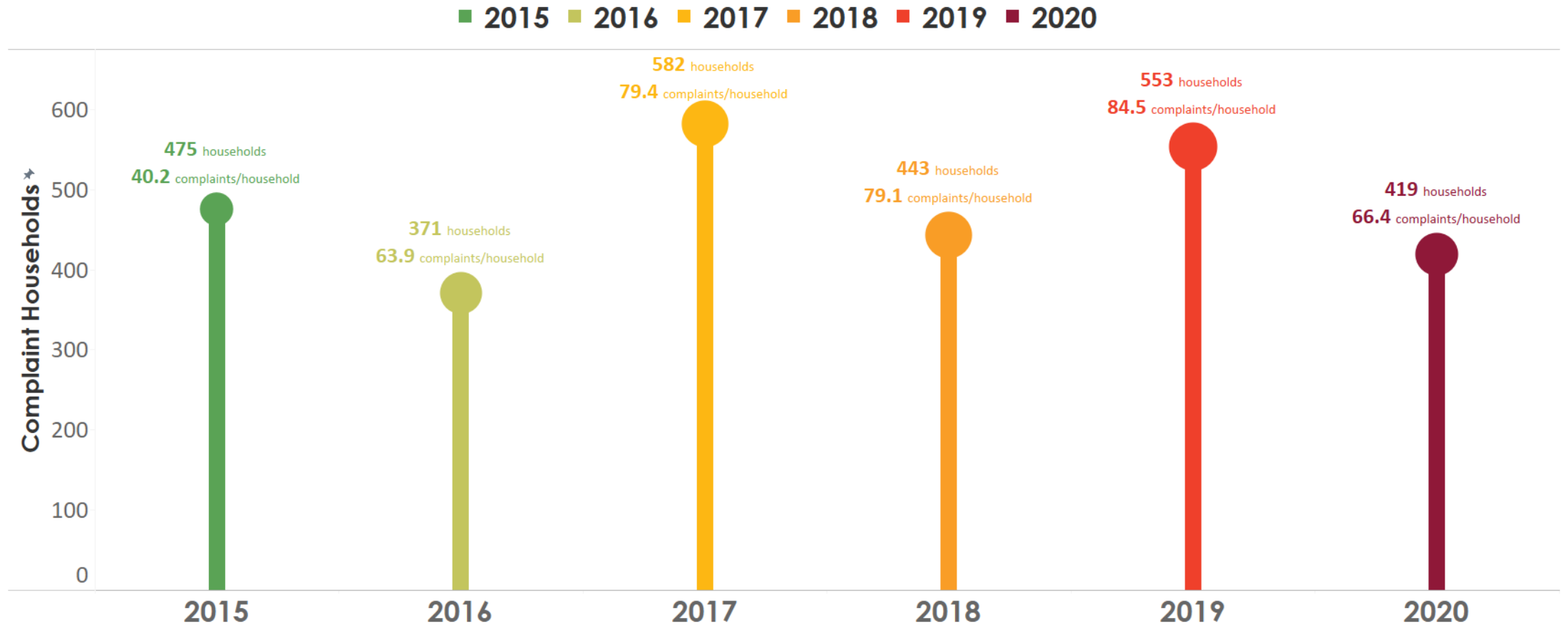
- Comparison of 2020 and 2019 Implementation Periods
 - Overall complaints decreased by 19,624 (-41%)
 - Land Plane complaints increased by 15% (1,777) and Undefined complaints increased by 4% (69)
 - Land Planes received the most complaints
- Comparison of 2020 and 2015 Implementation Periods
 - Overall complaints increased by 8,739 (+46%)
 - Land Plane complaints increased by 9,203 (+191%), with lesser increases for Seaplanes and Undefined
- Complaints submitted relatively equally via PlaneNoise (56%) and Air Noise Report (44%)

Total Complaints and Complaints by Fleet Mix: 2015-2020 Implementation Periods



Note: Curfews were in effect in 2015 and 2016

Unique Households Filing Complaints: 2015-2020 Implementation Periods



Note(s): Curfews were in effect in 2015 and 2016

Does not include complaint locations filed from Air Noise Report Mapped complaints

Complaint by Aircraft Type Analysis Observations



Source:

<https://www.flickr.com/photos/lockheedmartin/28173257795/in/album-72157667962699263/>

- The Sikorsky S76 helicopter had the most complaints (2,836)
 - S76s performed the third most operations (952) of any aircraft model
- The Cessna Caravan C208 seaplane had the second most complaints (1,514)
 - C208s performed the fourth most operations (792)
- The Bell 407 had third most complaints (1,129)
 - B407s performed the seventh most operations (459)
- Cessna 172s and Piper PA28s were the aircraft with the greatest number of operations
 - C172s performed 1,211 operations and yielded the fourth most complaints (613)
 - PA28s performed 1,125 operations and yielded the twelfth-most complaints (263)

Discussion

Appendix: History of Operational Restrictions at HTO and Helpful Definitions

April 7, 2015 Problem Statement

- Noise from aircraft operating at HTO disturbs many residents of the East End of Long Island
- Residents find helicopters more disturbing than any category of fixed-wing aircraft
- Disturbance caused by all types of aircraft is most significant when operations are (1) most frequent and (2) in evening, night, and early morning hours

History of Operational Restrictions

- Three restrictions enacted in April 2015
 - Nighttime Curfew. All aircraft, all year from 11 PM – 7 AM
 - Extended Curfew. “Noisy” aircraft, all year from 8 PM – 9 AM
 - One-Trip-Per-Week Limit. “Noisy” aircraft during the summer season (May-September)
 - Restrictions not immediately implemented due to litigation
- Two curfews implemented on July 2, 2015
 - This is the basis for analysis of the “Implementation Period,” from the Thursday before July 4 weekend to the end of the summer season on September 30
- All restrictions enjoined by federal appellate court in November 2016
- Restrictions not in effect since November 2016

Helpful Definitions

- “Noisy aircraft”: Aircraft with 91.0 EPNdB or higher published approach level
- “Implementation period”: Thursday before July 4 – September 30
 - This date range is based on initial implementation curfews in 2015
 - July 2 – September 30, 2015
 - June 30 – September 30, 2016
 - June 29 – September 30, 2017
 - June 28 – September 30, 2019
 - July 2 – September 30, 2020
- “Nighttime curfew”: Prohibit all aircraft operations year-round 11 PM – 7 AM enjoined in November 2016
- “Extended curfew”: Prohibit noisy aircraft year-round 8 PM – 9 AM (adds 8 – 11 PM and 7 – 9 AM evening and morning hours to nighttime curfew hours) enjoined in November 2016
- “Land planes”: Fixed-wing aircraft that land on runways and cannot land on water
- “Seaplanes”: Fixed-wing aircraft that can land on water and (in most cases) on land

Appendix: Additional 2020 Implementation Period HTO Operations Tables and Graphics

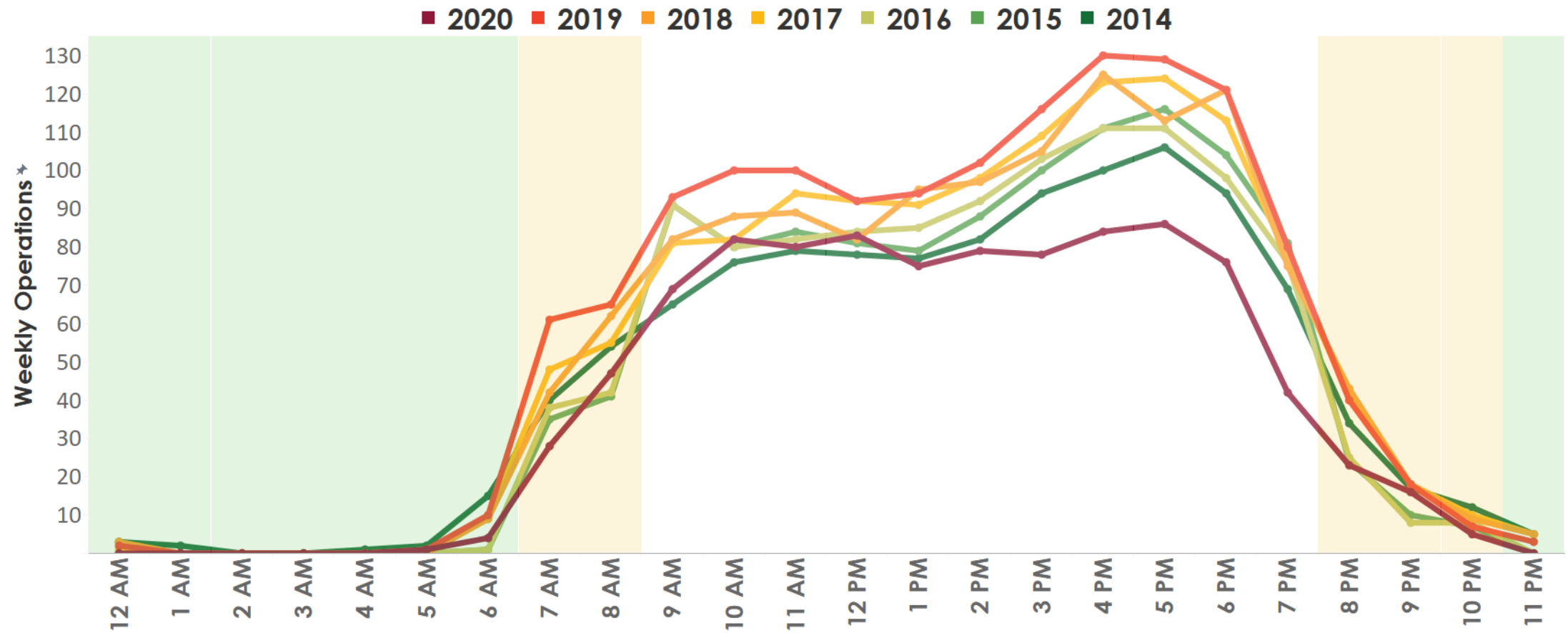
Operations Top-Level Observations: 2020 Compared to 2019 Implementation Period

- Comparison between 2020 and 2019 Implementation Periods:
 - Overall activity decreased by 6,686 operations (-35%)
 - Helicopter activity decreased by 3,823 operations (-63%)
 - Land Plane activity decreased by 684 operations (-7%)
 - Seaplane activity decreased by 1,798 operations (-68%)
 - Undefined activity decreased by 381 operations (-78%)
- In 2020, fewer operations occurred during curfew and extended curfew hours compared to 2017-2019
 - Noisy operations continue to shift into extended curfew hours
 - 2020 operations during morning extended curfew were generally lowest since 2014
 - Operations during extended curfew had been increasing since 2017, especially in morning hours

Operations Top-Level Observations: 2020 Compared to 2015 Implementation Period

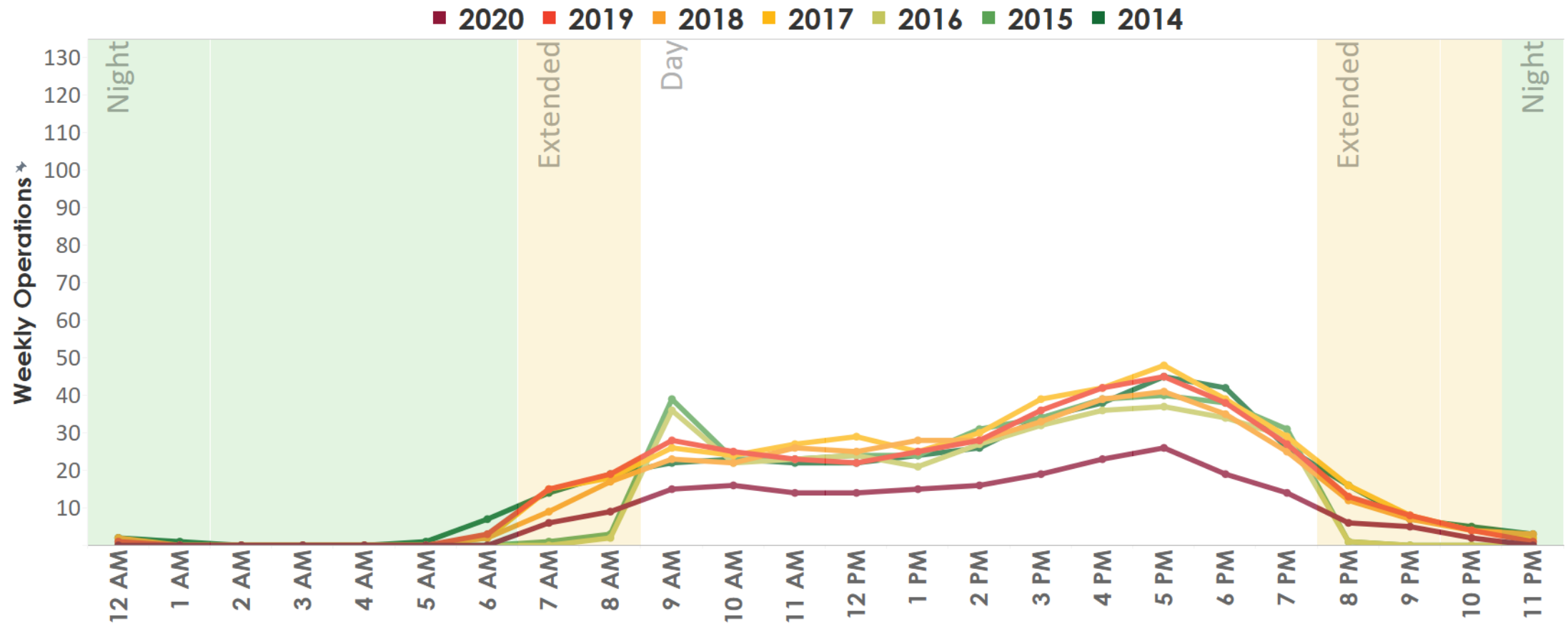
- Comparison between 2020 and 2015 Implementation Periods:
 - Overall activity decreased by 3,097 operations (-20%)
 - Helicopter activity decreased by 1,633 operations (-42%)
 - Land Plane activity increased by 343 operations (+4%)
 - Seaplane activity decreased by 1,052 operations (-56%)
 - Undefined activity decreased by 755 operations (-87%)
- Overall operations increased from 2015 to 2019, but in 2020 were slightly less than overall operations in 2015
- 2020 saw a slight increase in Land Plane operations compared to 2015 operations
 - Decreases in all other operational categories

Total Average Weekly Operations per-Hour: 2014-2020 Implementation Periods



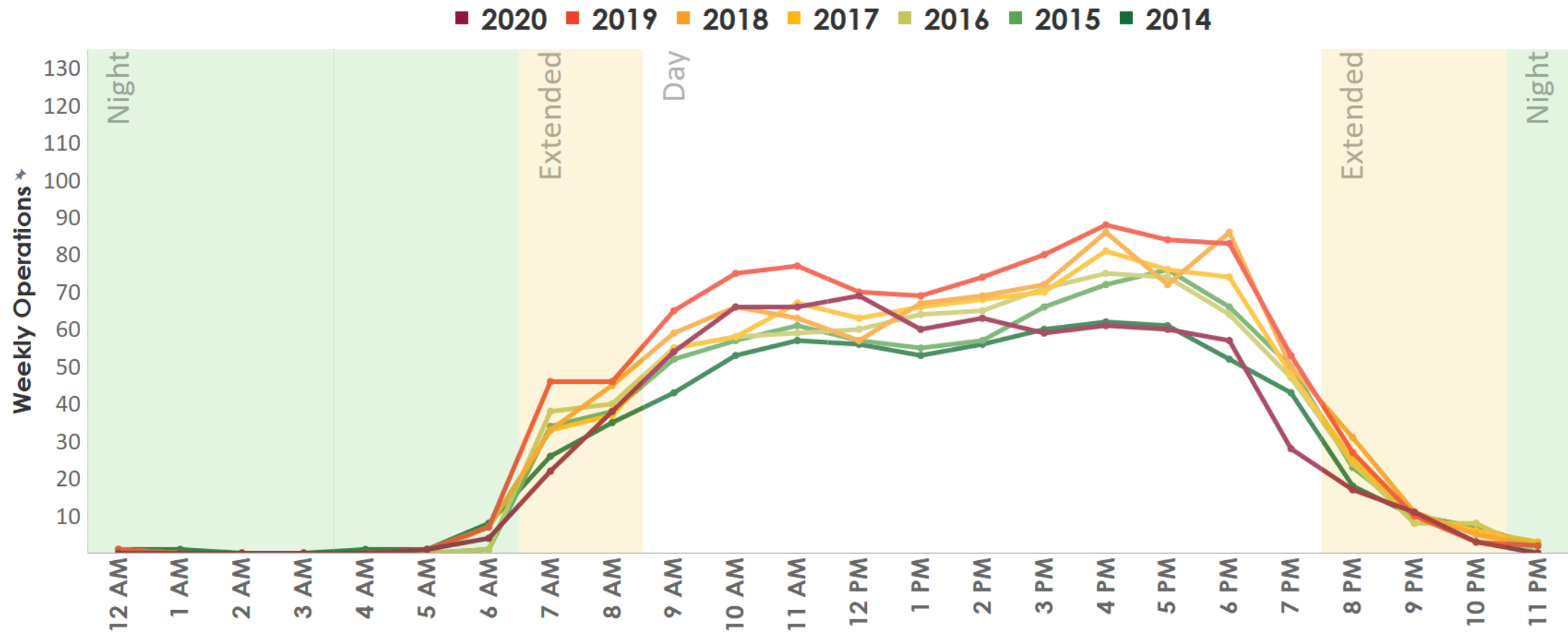
Note: Curfews were in effect in 2015 and 2016

Average “Noisy” Weekly Operations per-Hour: 2014-2020 Implementation Periods



Note: Curfews were in effect in 2015 and 2016

Average “Other” Weekly Operations per-Hour: 2014-2020 Implementation Periods



Note: Curfews were in effect in 2015 and 2016

Operations Fleet Mix Top Level Observations: 2020 Compared to 2019 Implementation Period

- General 2020 Implementation Period fleet mix observations
 - Land Planes were the largest category of aircraft operating at HTO with 74% (9,302) of all aircraft operations
 - Helicopters were the second largest category with 18% (2,283) of all aircraft operations
 - Seaplanes were the third largest category with 7% (830) of all operations
 - Undefined aircraft represented the remaining 1% (108) of all operations
- Comparison to 2019 Implementation Period operations fleet mix
 - The percentage of Land Planes in the fleet increased by 22%
 - The percentage of Helicopters in the fleet decreased by 14%
 - The percentage of Seaplanes in the fleet decreased by 7%
 - The percentage of Undefined aircraft in the fleet decreased by 2%
- Land planes make up nearly 75% of the 2020 Implementation Period operations fleet mix at HTO

Operations Fleet Mix Top Level Observations: 2020 Compared to 2015 Implementation Period

- Comparison between 2020 and 2015 Implementation Periods:
 - The percentage of Land Planes in the fleet increased by 17%
 - The percentage of Helicopters in the fleet decreased by 7%
 - The percentage of Seaplanes in the fleet decreased by 5%
 - The percentage of Undefined aircraft in the fleet decreased by 5%
- Compared to 2015, the fleet mix for 2020 includes more Land Planes
 - All other categories have decreased compared to 2015
- Prior to 2020, the fleet mix had been trending towards increases in Helicopters and Seaplanes

Operations Data:

2015-2020 Implementation Period Comparisons

Implementation Period Operations Comparisons						
Aircraft Category	2015 Operations	2016 Operations	2017 Operations	2018 Operations	2019 Operations	2020 Operations
Helicopters	3,916	3,770	5,577	5,729	6,106	2,283
Land Planes	8,959	9,173	9,604	9,299	9,986	9,302
Seaplanes	1,882	2,155	2,023	2,128	2,628	830
Multiple	0	0	0	0	0	0
Undefined	863	593	799	581	489	108
<i>Grand Total</i>	15,620	<i>15,691</i>	<i>18,003</i>	<i>17,737</i>	<i>19,209</i>	12,523

Implementation Period Operation Changes												
Aircraft Category	2015-2016 Numerical Change	2015-2016 Percentage Change	2016-2017 Numerical Change	2016-2017 Percentage Change	2017-2018 Numerical Change	2017-2018 Percentage Change	2018-2019 Numerical Change	2018-2019 Percentage Change	2019-2020 Numerical Change	2019-2020 Percentage Change	2015-2020 Numerical Change	2015-2020 Percentage Change
Helicopter	-146	-4%	1,802	48%	152	3%	377	7%	-3,823	-63%	-1,633	-42%
Land Planes	214	2%	483	5%	-305	-3%	687	7%	-684	-7%	343	4%
Seaplanes	273	15%	-131	-6%	105	5%	500	23%	-1,798	-68%	-1,052	-56%
Multiple	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Undefined	-270	-31%	319	54%	-218	-27%	-92	-16%	-381	-78%	-755	-87%
<i>Grand Total</i>	71	0%	<i>2,473</i>	<i>16%</i>	<i>-266</i>	<i>-1%</i>	<i>1,472</i>	<i>8%</i>	-6,686	-35%	-3,097	-20%

Note: Curfews were in effect in 2015 and 2016

Operations Data:

2015-2020 Implementation Periods by Fleet Mix Percentage

Implementation Period Operations Comparison						
Aircraft Category	2015 Operations	2016 Operations	2017 Operations	2018 Operations	2019 Operations	2020 Operations
Helicopters	3,916	3,770	5,577	5,729	6,106	2,283
Land Planes	8,959	9,173	9,604	9,299	9,986	9,302
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Implementation Period Operations Change by Percentage of Fleet Mix												
Aircraft Category	2015 Percentage of Operations	2016 Percentage of Operations	2017 Percentage of Operations	2018 Percentage of Operations	2019 Percentage of Operations	2020 Percentage of Operations	2015-2016 Percentage of Operations Change	2016-2017 Percentage of Operations Change	2017-2018 Percentage of Operations Change	2018-2019 Percentage of Operations Change	2019-2020 Percentage of Operations Change	2015-2020 Percentage of Operations Change
Helicopter	25%	24%	31%	32%	32%	18%	-1%	7%	1%	-1%	-14%	-7%
Land Planes	57%	58%	53%	52%	52%	74%	1%	-5%	-1%	0%	22%	17%
Seaplanes	12%	14%	11%	12%	14%	7%	2%	-3%	1%	2%	-7%	-5%
Multiple	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Undefined	6%	4%	4%	3%	3%	1%	-2%	0%	-1%	-1%	-2%	-5%
<i>Grand Total</i>	100%	100%	100%	100%	100%	100%	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>

Note: Curfews were in effect in 2015 and 2016

Appendix: Additional 2020 Implementation Period HTO Complaint Data

HTO Complaint Reporting Systems: PlaneNoise

- Town has been under contract since 2012
- Commercial Product
- All complaints are address based, and tracks complaints associated with HTO and Montauk (MTP) airport
- Utilizes a combination of web, e-mail, fax, mobile app, and phone portals for complaint entry
- New: Complaints from the Airnoise.io system began to be transmitted to the Town through the PlaneNoise system on July 23, 2019 and are included in our 2020 analysis

A screenshot of the "Airport Noise Complaint Form" for the Town of East Hampton. The form is titled "Airport Noise Complaint Form" and includes a header with the town's name and logo. It is divided into two main sections: "Your Information" and "Complaint Information". The "Your Information" section includes fields for First Name, Last Name, Phone, and Email. The "Complaint Information" section includes fields for Noise Event Date, Noise Event Time, a checkbox for "Did the noise event occur at your current location?", a dropdown for "Airport", and a "Type of Complaint" section with checkboxes for Excessive Noise, Low Altitude, Hovering, Frequency, Excessive Vibration, and Too Early or Late. A sidebar on the right titled "Filing Your Complaint" provides instructions on how to file a complaint, including using a complaint box, mobile app, website, or voicemail, and sending an email to HTO@planenoise.com.

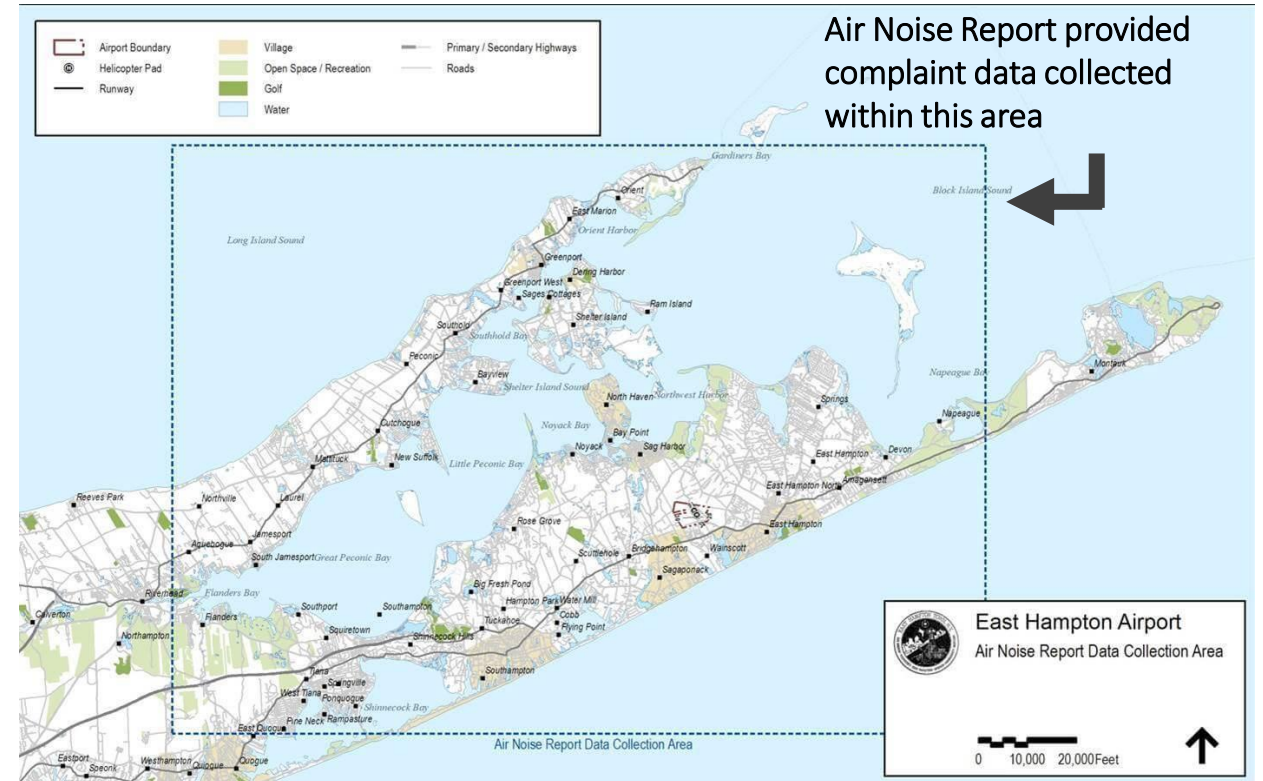
HTO Complaint Reporting System: Airnoise.io

- Airnoise.io is a system used at many airports across the country that allows users to file aircraft noise complaints
- Is not maintained by the Town and not commercially available for sale to airport operators
- Requires account to file complaints and may involve a monthly subscription fee for users (if filing more than 30 complaints a month or using complaint button)
- Supports use of web portal, SMS, or a complaint button
- Identifies closest aircraft utilizing Automatic Dependent Surveillance Broadcast (ADS-B) technology, if possible, to user address associated with user filing complaint at time complaint is filed
- Complaints from the Airnoise.io system are received by the Town through transmittal to the PlaneNoise complaint system
- Airnoise.io complaints began to be transmitted to PlaneNoise on July 23, 2019 and are included in our 2020 analysis with PlaneNoise complaints



HTO Complaint Reporting Systems: Air Noise Report

- Became fully operational in late June of 2016
- Utilizes a web portal for complaint entry
- Complaints can be filed based on:
 - location of an aircraft using Automatic Dependent Surveillance Broadcast (ADS-B) or Mode-S technology (Mapped Complaints)
 - Address (Manual Complaints)
- Operated and maintained by NYC resident concerned about helicopter noise
- Not commercially available for sale



Categorizing Operations Responsible for Complaints

- The PlaneNoise, Airnoise.io, and Air Noise Report complaint entry methods do not provide consistent bases for categorizing fixed-wing aircraft
- Air Noise Report does not support a multiple aircraft complaint

Aircraft Type Category	PlaneNoise and Airnoise.io Complaints	Air Noise Report Complaints	
		Manual	Mapped
Helicopter	Helicopter	Helicopter	ANR mapped complaints require complainant to identify a specific aircraft operation, which permits identification of the <u>exact</u> aircraft type, including “noisy” and “other” types
Fixed-Wing	Jet	N/A	
	Prop	N/A	
	N/A	Small Airplane	
	N/A	Large Airplane	
	Seaplane	Seaplane	
Undefined Type	Unknown	Unsure	<i>Applies when tail number not listed in any source</i>
Multiple Aircraft	Multiple	<i>Not supported</i>	<i>Not supported</i>

Complaints Top-Level Observations: 2020 Compared to 2019 Implementation Period

- Comparison of 2020 and 2019 Implementation Periods
 - Overall complaints decreased by 19,624 (-41%)
 - Helicopter complaints decreased by 14,919 (-60%)
 - Land Plane complaints increased by 1,777 (+15%)
 - Seaplane complaints decreased by 6,218 (-76%)
 - Multiple aircraft complaints decreased by 333 (-81%)
 - Undefined aircraft complaints increased by 69 (+4%)
- As with operations, overall complaints for 2020 decreased sharply from 2019
 - Land Plane complaints and operations increased since 2019
 - All other complaints except Undefined complaints decreased

Complaints Top-Level Observations: 2020 Compared to 2015 Implementation Period

- Comparison between 2020 and 2015 Implementation Periods:
 - Overall complaints increased by 8,739 (+46%)
 - Helicopter complaints decreased by 1,288 (-12%)
 - Land Plane complaints increased by 9,203 (+191%)
 - Seaplane complaints increased by 438 (+29%)
 - Multiple aircraft complaints decreased by 281 (-78%)
 - Undefined complaints increased by 667 (+55%)

Complaints by Fleet Mix Top Level Observations: 2020 Compared to 2019 Implementation Period

- General 2020 Implementation Period fleet mix complaint observations
 - Land Planes were the most complained about category of aircraft at HTO with 50% (14,013) of complaints
 - Helicopters were the second largest category, with 36% (9,894) of complaints
 - Seaplanes were the third largest category with 7% (1,967) of complaints
 - Multiple and Undefined aircraft represented the remaining 7% (1,964) of all complaints
- Comparison to 2019 Implementation Period complaints
 - Complaints regarding Land Planes increased by 15%
 - Smaller increase regarding Undefined operations (4%)
 - Complaints regarding all other categories decreased
- 2020 Implementation Period complaints shifted toward operations associated with Land Planes and away from other types

Complaints by Fleet Mix Top Level Observations: 2020 Compared to 2015 Implementation Period

- Comparison between 2020 and 2015 Implementation Periods:
 - Overall, the percentage of complaints increased by 46%
 - Complaints regarding Land Planes nearly doubled (191%)
 - Slight increase in Seaplane and Undefined complaints
 - Decrease in complaints regarding Helicopters and Multiple aircraft
- Between 2020 and 2015, complaints shifted toward operations associated with Land Planes
 - Increase towards Seaplanes and Undefined aircraft
 - Shift in complaints away from Helicopters and Multiple aircraft
- Prior to 2020, complaints were increasing for all categories
 - Greatest percent increases in Multiple aircraft and Seaplane complaints up to 2019

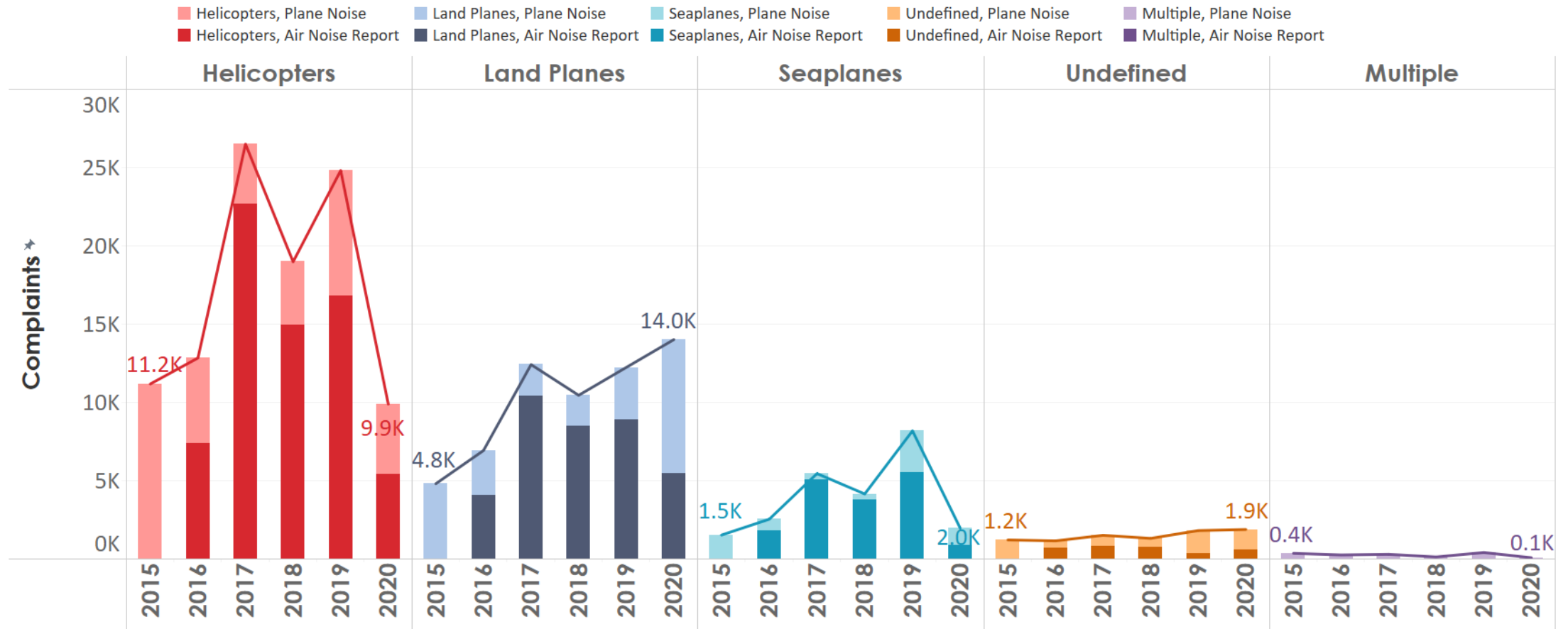
Complaints Compared to Operations

- General 2020 Implementation Period complaints compared to operations
 - Undefined aircraft had the most complaints per operation (17.4 complaints per operation)
 - This is largely due to the low number of operations associated with undefined aircraft: 108 operations yielded 1,884 complaints
 - Helicopters had the second most complaints per operation (4.3 complaints per operation)
 - Seaplanes had the third most complaints per operation (2.4 complaints per operation)
 - Land Planes had the least complaints per operation (1.5 complaints per operation)
- Excluding Undefined aircraft, Helicopters and Seaplanes generated the most complaints on a per operation basis
- Compared to the 2015 Implementation Period, the number of complaints per operation has increased across all categories
 - Highest increase for Helicopters (4.3 complaints/operation in 2020 vs. 2.9 complaints/operation in 2015) and Seaplanes (2.4 complaints/operation in 2020 vs. 0.8 complaints/operation in 2015)
 - Excluding complaints/operation for Undefined aircraft

Complaint Method of Reporting Top Level Observations

- General 2020 Implementation Period method of reporting observations
 - 44% (12,382) of all complaints were filed through Air Noise Report
 - 56% (15,456) of all complaints were filed through PlaneNoise
 - Of all PlaneNoise complaints, 37% (5,734) were received through Airnoise.io
 - Remaining 63% (9,722) of PlaneNoise complaints were received through the PlaneNoise HTO hotline, e-mail, mobile, or webform methods
- Complaint reports equally split between Air Noise Report and PlaneNoise in 2020
 - Previously, Air Noise Report was the primary method of reporting complaints since the system became operational in 2016

Percentage of Complaints by Reporting System: 2015-2020 Implementation Periods

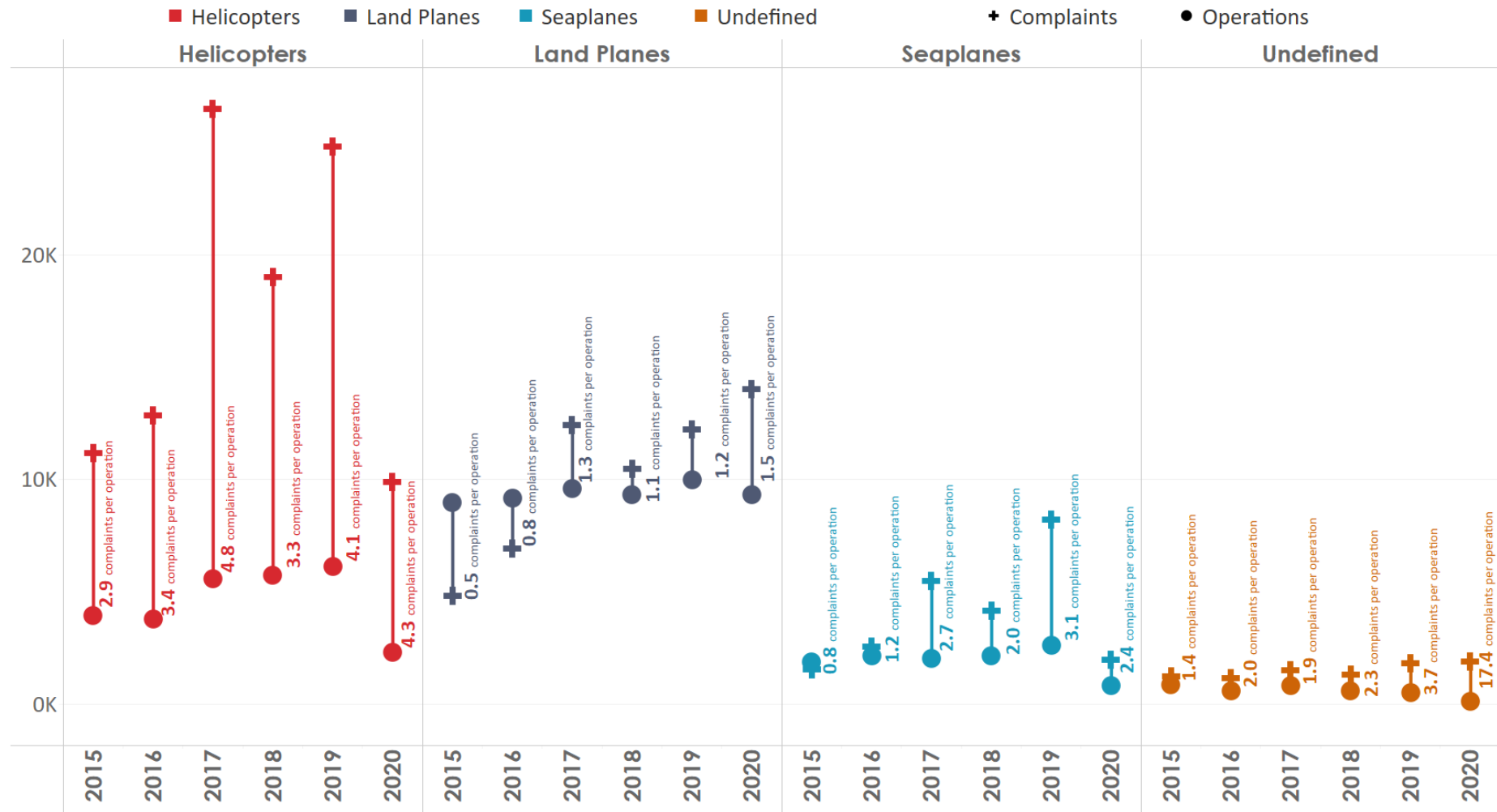


Note(s): Curfews were in effect in 2015 and 2016
PlaneNoise complaints include complaints from Airnoise.io

HTO Address-based Complaint Analysis: 2015-2020 Implementation Periods

- Only some HTO complaints contain address/household information
 - All PlaneNoise complaints (including Airnoise.io) – anonymized address latitude and longitude
 - Air Noise Report Manual complaints – anonymized address latitude and longitude
- Other HTO complaints do not contain address information
 - Air Noise Report Mapped complaints
 - Latitude and longitude of aircraft location when complaint is filed
 - No address information is provided when a complaint is filed
- Air Noise Report Mapped complaints were omitted from this analysis as a specific address/household could not be identified for each complaint

Complaints per Operation: 2015-2020 Implementation Periods



Note(s): Curfews were in effect in 2015 and 2016
PlaneNoise complaints include complaints from

Complaint by Aircraft Type Analysis Overview

- Only Air Noise Report Mapped and PlaneNoise complaints transmitted from Airnoise.io contain specific aircraft type information
 - Non-Airnoise.io PlaneNoise and Air Noise Report manual complaints allow for a selection of an aircraft category, but specific aircraft types are not provided
 - Air Noise Report Mapped and PlaneNoise complaints transmitted from Airnoise.io utilize aircraft ADS-B and Mode S information (if equipped) to identify specific aircraft type and registration based on publicly available FAA data
 - Air Noise Report Mapped and PlaneNoise complaints transmitted from Airnoise.io aircraft type and registration data allows for matching with the Vector system to HTO operations
- This analysis examines the helicopter and fixed-wing aircraft types and registrations with the highest numbers of complaints with the actual number of operations performed by these aircraft based on aircraft registration and type data at HTO for the 2020 Implementation Period

Complaint Data:

2015-2020 Implementation Period Comparisons

Implementation Period Complaint Comparisons						
Aircraft Category	2015 Complaints	2016 Complaints	2017 Complaints	2018 Complaints	2019 Complaints	2020 Complaints
Helicopters	11,182	12,837	26,502	18,983	24,813	9,894
Land Planes	4,810	6,927	12,417	10,456	12,236	14,013
Seaplanes	1,529	2,540	5,456	4,153	8,185	1,967
Multiple	361	257	297	130	413	80
Undefined	1,217	1,157	1,513	1,317	1,083	1,884
<i>Grand Total</i>	19,099	23,718	46,185	35,039	46,730	27,838

Implementation Period Complaint Percentage Changes												
Aircraft Category	2015-2016 Numerical Change	2015-2016 Percentage Change	2016-2017 Numerical Change	2016-2017 Percentage Change	2017-2018 Numerical Change	2017-2018 Percentage Change	2018-2019 Numerical Change	2018-2019 Percentage Change	2019-2020 Numerical Change	2019-2020 Percentage Change	2015-2020 Numerical Change	2015-2020 Percentage Change
Helicopter	1,655	15%	13,665	106%	-7,519	-28%	5,830	31%	-14,919	-60%	-1,288	-12%
Land Planes	2,117	44%	5,490	79%	-1,961	-16%	1,780	17%	1,777	15%	9,203	191%
Seaplanes	1,011	66%	2,916	115%	-1,303	-24%	4,032	97%	-6,218	-76%	438	29%
Multiple	-104	-29%	40	16%	-167	-56%	283	218%	-333	-81%	-281	-78%
Undefined	-60	-5%	356	31%	-196	-13%	498	38%	69	4%	667	55%
<i>Grand Total</i>	4,619	24%	22,467	95%	-11,146	-24%	12,423	35%	-19,624	-41%	8,739	46%

Note(s): Curfews were in effect in 2015 and 2016

Does not include complaint locations filed from Air Noise Report Mapped complaints

Complaint Data:

2015-2020 Implementation Periods by Fleet Mix Percentage

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Multiple	361	257	297	130	413	80
Undefined	1,217	1,157	1,513	1,317	1,083	1,884
<i>Grand Total</i>	<i>19,099</i>	<i>23,718</i>	<i>46,185</i>	<i>35,039</i>	<i>46,730</i>	<i>27,838</i>

Implementation Period Complaints by Percentage of Fleet Mix												
Aircraft Category	2015 Percentage of Complaints	2016 Percentage of Complaints	2017 Percentage of Complaints	2018 Percentage of Complaints	2019 Percentage of Complaints	2020 Percentage of Complaints	2015-2016 Percentage of Complaints Change	2016-2017 Percentage of Complaints Change	2017-2018 Percentage of Complaints Change	2018-2019 Percentage of Complaints Change	2019-2020 Percentage of Complaints Change	2015-2020 Percentage of Complaints Change
Helicopter	59%	54%	57%	54%	53%	36%	-5%	3%	-3%	-1%	-60%	-23%
Land Planes	25%	29%	27%	30%	26%	50%	4%	-2%	3%	-4%	-15%	25%
Seaplanes	8%	11%	12%	12%	18%	7%	3%	1%	0%	6%	-76%	-1%
Multiple	2%	1%	1%	0%	1%	0%	-1%	0%	-1%	1%	-81%	-2%
Undefined	6%	5%	3%	4%	2%	7%	-1%	-2%	1%	-2%	4%	0%
<i>Grand Total</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>

Note: Curfews were in effect in 2015 and 2016

Complaint Data by Method of Reporting: 2015-2020 Implementation Periods

Implementation Period Complaints by Method of Reporting													
Complaint System	Method of Reporting	2015 Complaints	2016 Complaints	2017 Complaints	2018 Complaints	2019 Complaints	2020 Complaints	2015 Complaint Percentage	2016 Complaint Percentage	2017 Complaint Percentage	2018 Complaint Percentage	2019 Complaint Percentage	2020 Complaint Percentage
PlaneNoise	Hotline	N/A	3,190	1,578	1,401	1,503	585	N/A	13%	3%	4%	3%	2%
	Fax		1	0	0	0	0		0%	0%	0%	0%	0%
	Mobile App		0	0	2,922	7,544	4,592		0%	0%	8%	16%	16%
	Manual		1,247	607	269	71	219		5%	1%	1%	0%	1%
	Email		514	231	91	835	2,721		2%	0%	0%	2%	10%
	Airnoise.io		N/A	N/A	N/A	3,358	5,734		N/A	N/A	N/A	7%	21%
	Webform		4,802	4,831	2421	1,881	1,605		20%	10%	7%	4%	6%
	PlaneNoise Total	19,099	9,754	7,247	7,115	15,192	15,456	100%	40%	15%	20%	33%	56%
Air Noise Report	Manual	N/A	4,678	10,069	5,536	5,295	2,775	N/A	20%	22%	16%	11%	10%
	Mapped		9,286	28,869	22,388	26,243	9,607		39%	63%	64%	56%	35%
	Air Noise Report Total	N/A	13,964	38,938	27,924	31,538	12,382	N/A	59%	84%	80%	67%	44%
Grand Total		19,099	23,718	46,185	35,039	46,730	27,838	100%	100%	100%	100%	100%	100%

Note(s): Curfews were in effect in 2015 and 2016

PlaneNoise "manual" complaints are multiple listed dates/times from hotline and webform complaints that PlaneNoise manually enters into the system.

Air Noise Report "manual" complaints are those that complainants manually entered via the webform.

Complaint method of reporting not analyzed for 2015 as all complaints originated from the PlaneNoise system.

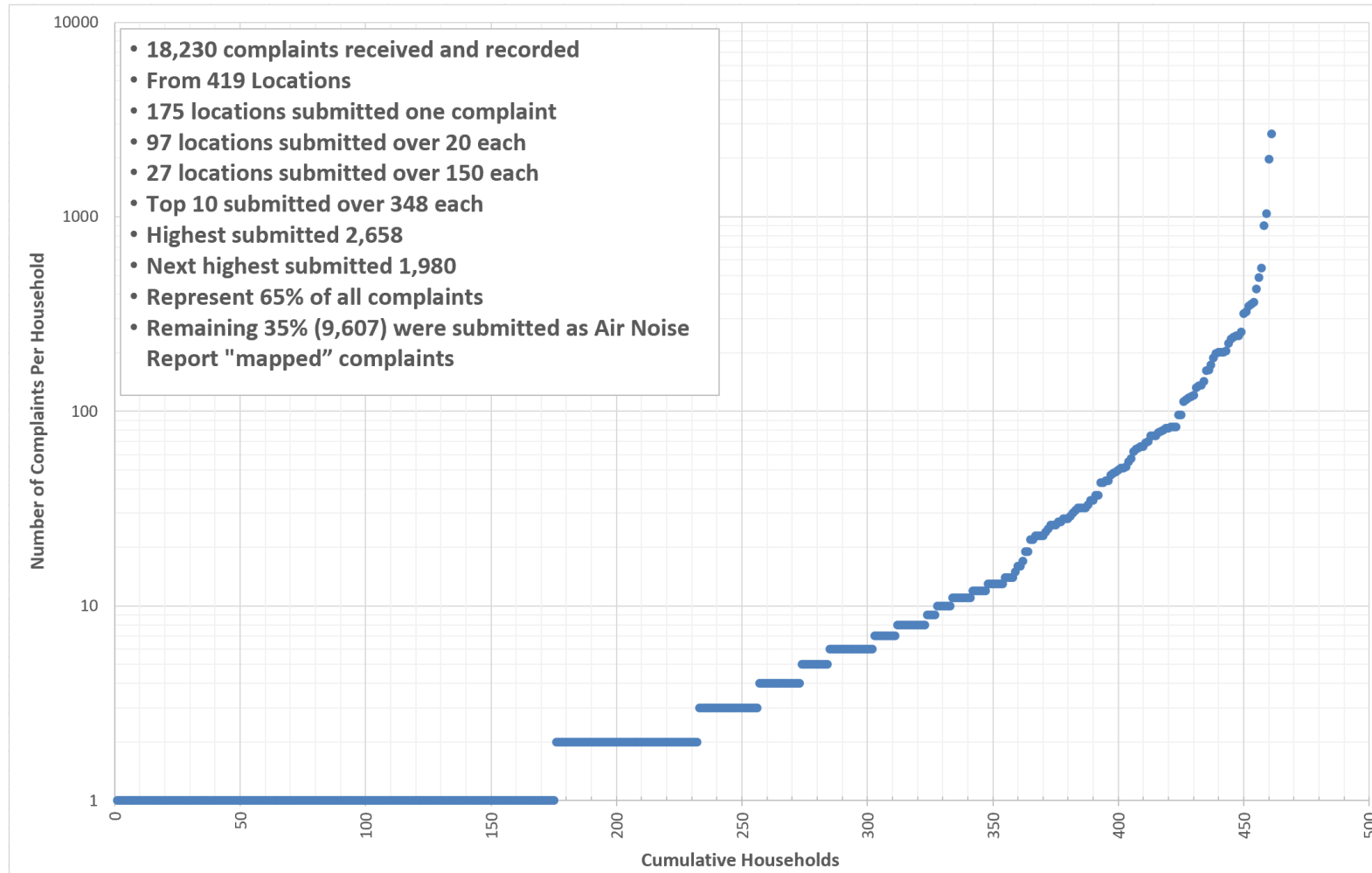
Complaint Data by Complaint System and Aircraft Category: 2015 - 2020 Implementation Periods

Implementation Period Complaints by Complaint System																		
Aircraft Category	PlaneNoise Complaints						Air Noise Report Complaints						Total Complaints					
	2015	2016	2017	2018	2019	2020	2015	2016	2017	2018	2019	2020	2015	2016	2017	2018	2019	2020
Helicopters	11,182	5,449	3,833	4,041	8,009	4,459	N/A	7,388	22,669	14,942	16,804	5,435	11,182	12,837	26,502	18,983	24,813	9,894
Land Planes	4,810	2,885	2,037	1,980	3,364	8/535	N/A	4,042	10,380	8,476	8,872	5,478	4,810	6,927	12,417	10,456	12,236	14,013
Seaplanes	1,529	718	375	396	2,674	1,094	N/A	1,822	5,081	3,757	5,511	873	1,529	2,540	5,456	4,153	8,185	1,967
Multiple	361	257	297	130	413	80	N/A	N/A	N/A	N/A	N/A	0	361	257	297	130	413	80
Undefined	1,217	445	705	568	732	1,288	N/A	712	808	749	351	596	1,217	1,157	1,513	1,317	1,083	1,884
Grand Total	19,099	9,754	7,247	7,115	15,192	15,456	N/A	13,964	38,938	27,924	31,538	12,382	19,099	23,718	46,185	35,039	46,730	27,838

Implementation Period Complaints by Complaint System												
Aircraft Category	PlaneNoise Percentage of Total Complaints						Air Noise Report Percentage of Total Complaints					
	2015	2016	2017	2018	2019	2020	2015	2016	2017	2018	2019	2020
Helicopters	59%	23%	8%	12%	17%	16%	0%	31%	49%	43%	36%	20%
Land Planes	25%	12%	4%	6%	7%	31%	0%	17%	22%	24%	19%	20%
Seaplanes	8%	3%	1%	1%	6%	4%	0%	8%	11%	11%	12%	3%
Multiple	2%	1%	1%	0%	1%	0%	0%	N/A	N/A	N/A	N/A	N/A
Undefined	6%	2%	2%	2%	2%	5%	0%	3%	2%	2%	1%	2%
Grand Total	100%	41%	16%	20%	33%	56%	0%	59%	84%	80%	67%	44%

Note: Curfews were in effect in 2015 and 2016

Complaints Per Household: 2020 Implementation Period



Appendix: 2020 Implementation Period Air Noise Report Mapped and Airnoise.io Complaints

Aircraft Type and Registration Operations and Complaint Tables

Top 20 Helicopter Types Associated with Air Noise Report Mapped and Airnoise.io Complaints: 2020 Implementation Period

Helicopter Category	Helicopter Type	Air Noise Report Mapped and Airnoise.io Complaints Filed for Helicopter Type (55% of Total Complaints)	HTO Operations Associated with Helicopter Type, from Vector (100% of Operations)
Noisy Helicopter	S76	2,836	952
Other Helicopter	B407	1,129	459
Noisy Helicopter	B430	504	136
Noisy Helicopter	AS55	344	157
Noisy Helicopter	A139	277	119
Noisy Helicopter	S92	259	66
Noisy Helicopter	AS65	194	77
Noisy Helicopter	B427	186	78
Noisy Helicopter	A109	162	74
Noisy Helicopter	EC55	116	34
Other Helicopter	R66	65	48
Noisy Helicopter	BK17	62	20
Noisy Helicopter	B429	54	14
Noisy Helicopter	AS50	42	18
Other Helicopter	EC45	33	Note
Other Helicopter	R44	17	14
Other Helicopter	H500	15	3
Other Helicopter	B06	12	9
Other Helicopter	NULL	10	108
Other Helicopter	A119	4	Note
Total		6,321	2,386

Note: Vector data did not include any HTO operations associated with this helicopter type

Top 20 Fixed-Wing Aircraft Types Associated with Air Noise Report Mapped and Airnoise.io Complaints: 2020 Implementation Period

Aircraft Category	Aircraft Type	Air Noise Report Mapped and Airnoise.io Complaints Filed for Aircraft Type (55% of Total Complaints)	HTO Operations Associated with Aircraft Type, from Vector (100% of Operations)
Seaplane	C208	1514	792
Prop	C172	613	1211
Prop	SR22	598	654
Prop	PC12	537	720
Other Jet	CL30	400	360
Prop	C182	267	210
Prop	P28A	263	1125
Prop	C208	205	792
Prop	PA34	199	307
Other Jet	E55P	197	302
Prop	BE58	190	207
Noisy Jet	C56X	188	228
Noisy Jet	C680	188	398
Prop	PA32	165	84
Prop	B350	157	208
Prop	BE36	137	71
Other Jet	GLEX	137	109
Prop	SR20	125	56
Prop	PA31	107	122
Prop	BE33	87	69
Total		6,274	8,025

Note: Air Noise Report does not display most Jet operations

Top 20 Individual Helicopters Associated with Air Noise Report Mapped and Airnoise.io Complaints: 2020 Implementation Period

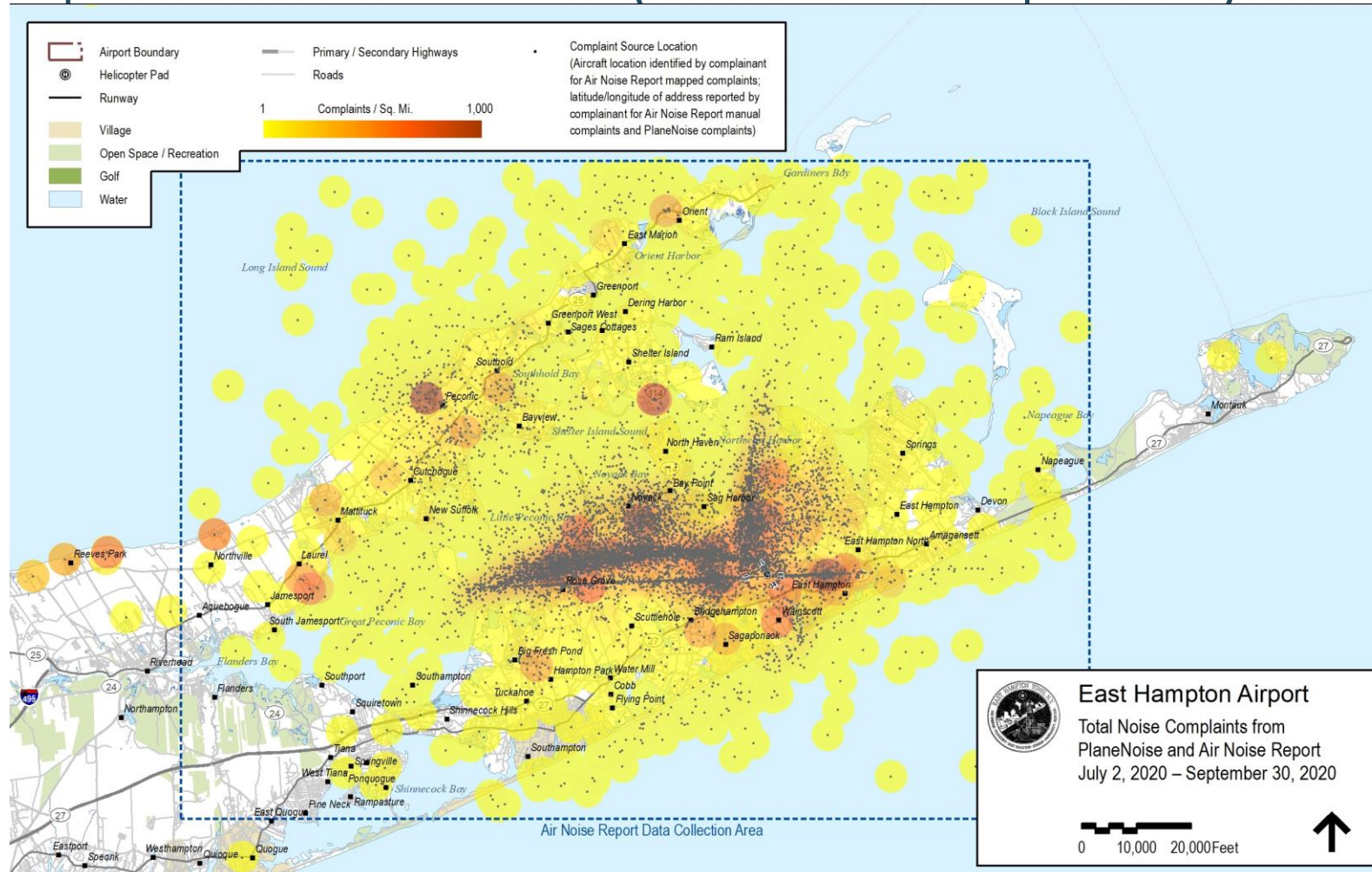
Helicopter Category	Helicopter Type	Aircraft #	Air Noise Report Mapped and Airnoise.io Complaints Filed Against an Individual Helicopter (55% of Total Complaints)	HTO Operations Associated with That individual Helicopter, from Vector (100% of Operations)
Noisy Helicopter	S76	1	427	139
Noisy Helicopter	S76	2	372	120
Noisy Helicopter	B430	3	354	94
Other Helicopter	B407	4	350	139
Noisy Helicopter	S76	5	268	79
Noisy Helicopter	S92	6	259	66
Noisy Helicopter	S76	7	255	77
Other Helicopter	B407	8	229	76
Noisy Helicopter	S76	9	210	58
Noisy Helicopter	AS65	10	194	77
Noisy Helicopter	S76	11	192	68
Noisy Helicopter	B427	12	186	78
Noisy Helicopter	S76	13	182	56
Noisy Helicopter	S76	14	171	57
Noisy Helicopter	AS55	15	161	66
Noisy Helicopter	S76	16	159	48
Other Helicopter	B407	17	159	66
Noisy Helicopter	AS55	18	158	85
Noisy Helicopter	S76	19	154	48
Noisy Helicopter	A139	20	142	36
Total			4,582	1,533

Top 20 Individual Fixed-Wing Aircraft Associated with Air Noise Report Mapped and Airnoise.io Complaints: 2020 Implementation Period

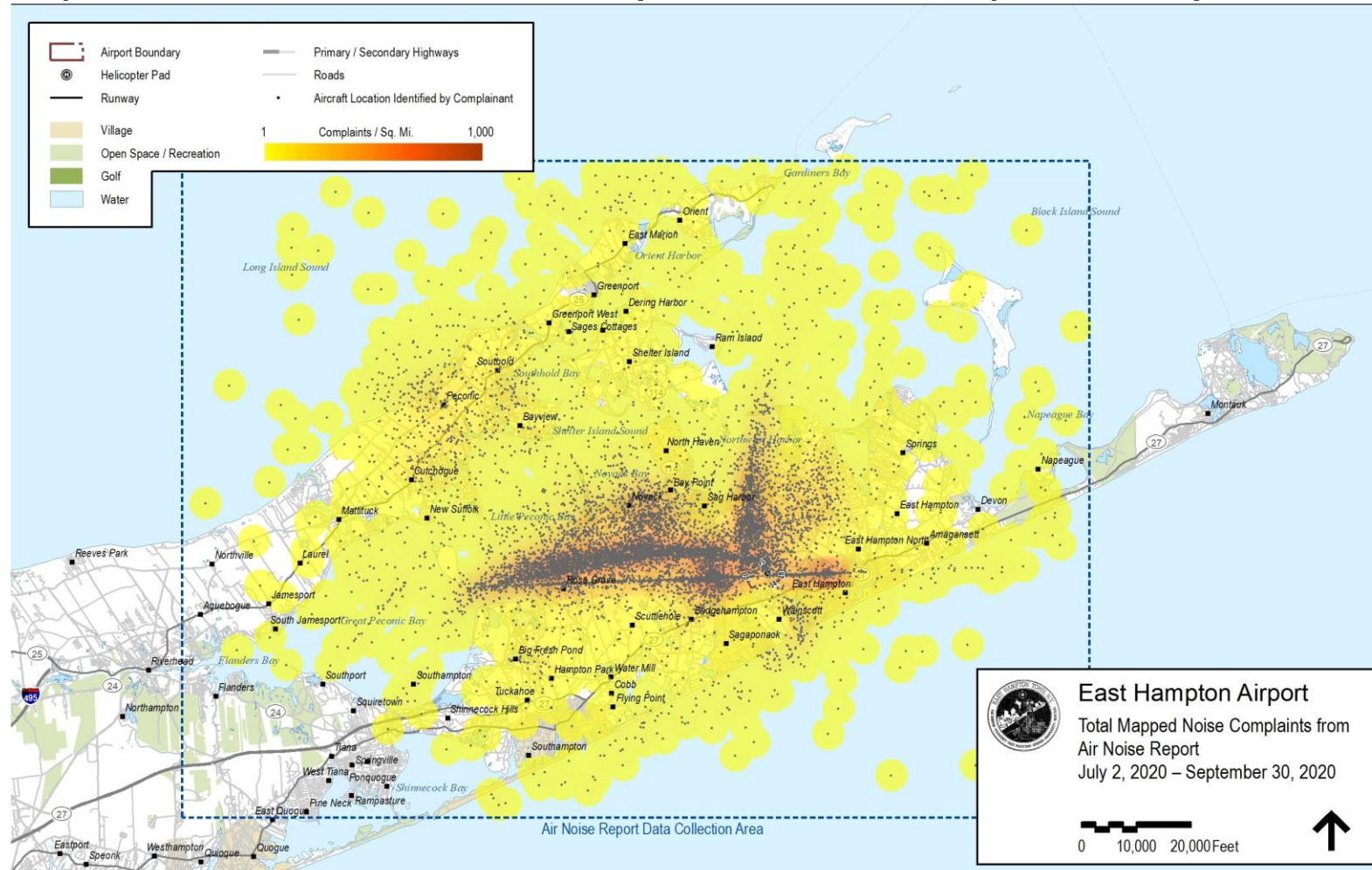
Aircraft Category	Aircraft Type	Aircraft #	Air Noise Report Mapped and Airnoise.io Complaints Filed Against an individual Aircraft (63% of Total Complaints)	HTO Operations Associated with that Individual Aircraft, from Vector (100% of Operations)
Seaplane	C208	1	495	205
Seaplane	C208	2	370	167
Prop	C172	3	193	723
Seaplane	C208	4	171	69
Prop	C208	5	146	45
Seaplane	C208	6	106	82
Seaplane	C208	7	102	52
Seaplane	C208	8	85	40
Prop	PA34	9	77	102
Prop	SR22	10	73	39
Seaplane	C208	11	65	28
Other Jet	GL5T	12	62	33
Prop	P28A	13	57	903
Prop	BE58	14	56	114
Prop	PA31	15	54	76
Prop	PC12	16	53	52
Prop	BCAT	17	47	114
Seaplane	C208	18	46	24
Prop	PA34	19	45	83
Prop	PA32	20	45	18
Total			2,348	2,969

Appendix: 2020 Implementation Period Maps of Geographic Distributions of Complaints

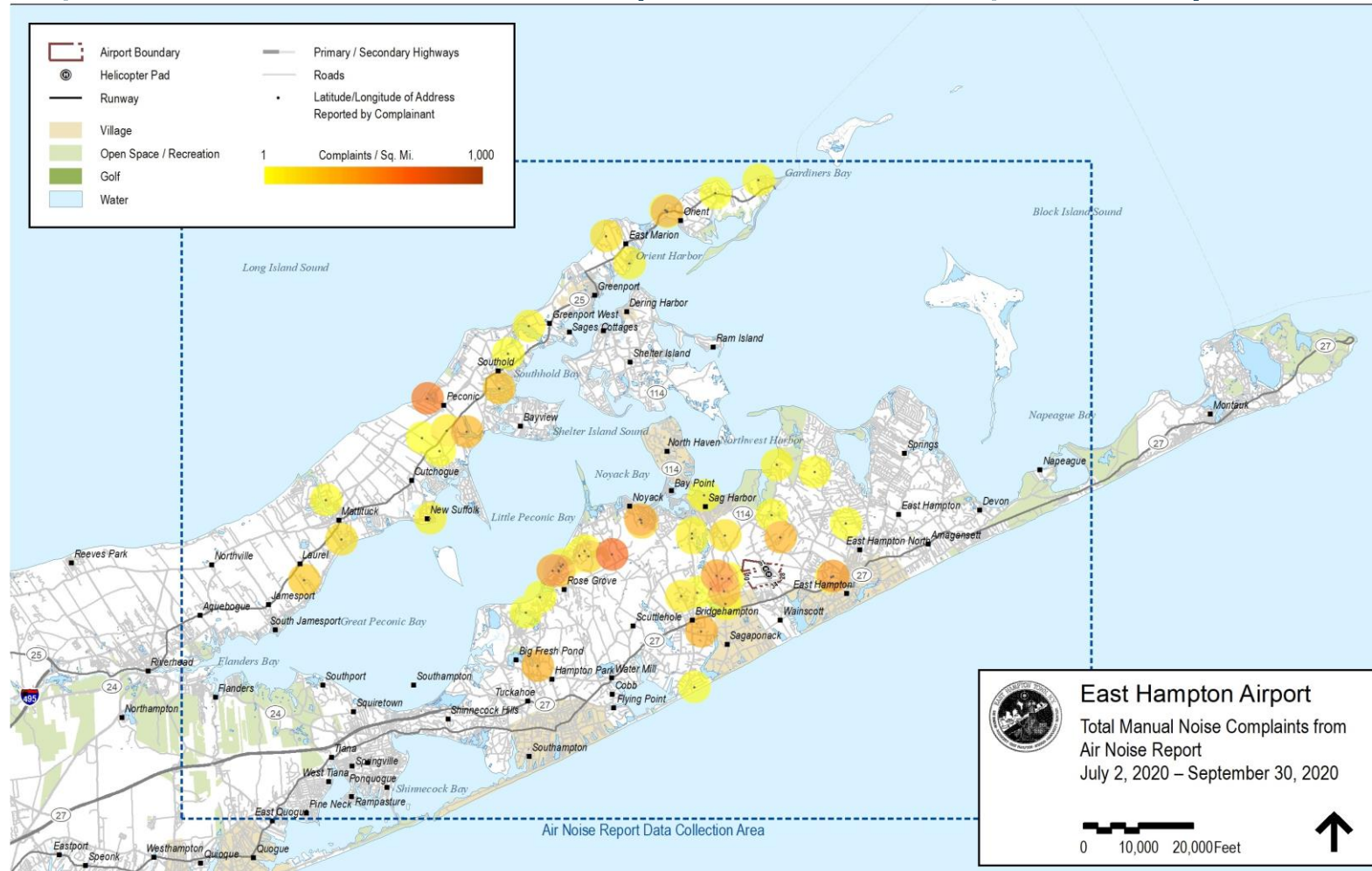
All Complaints from PlaneNoise and Air Noise Report July 2 - September 30, 2020 (27,838 Complaints)



All “Mapped” Complaints from Air Noise Report July 2 - September 30, 2020 (9,607 Complaints)

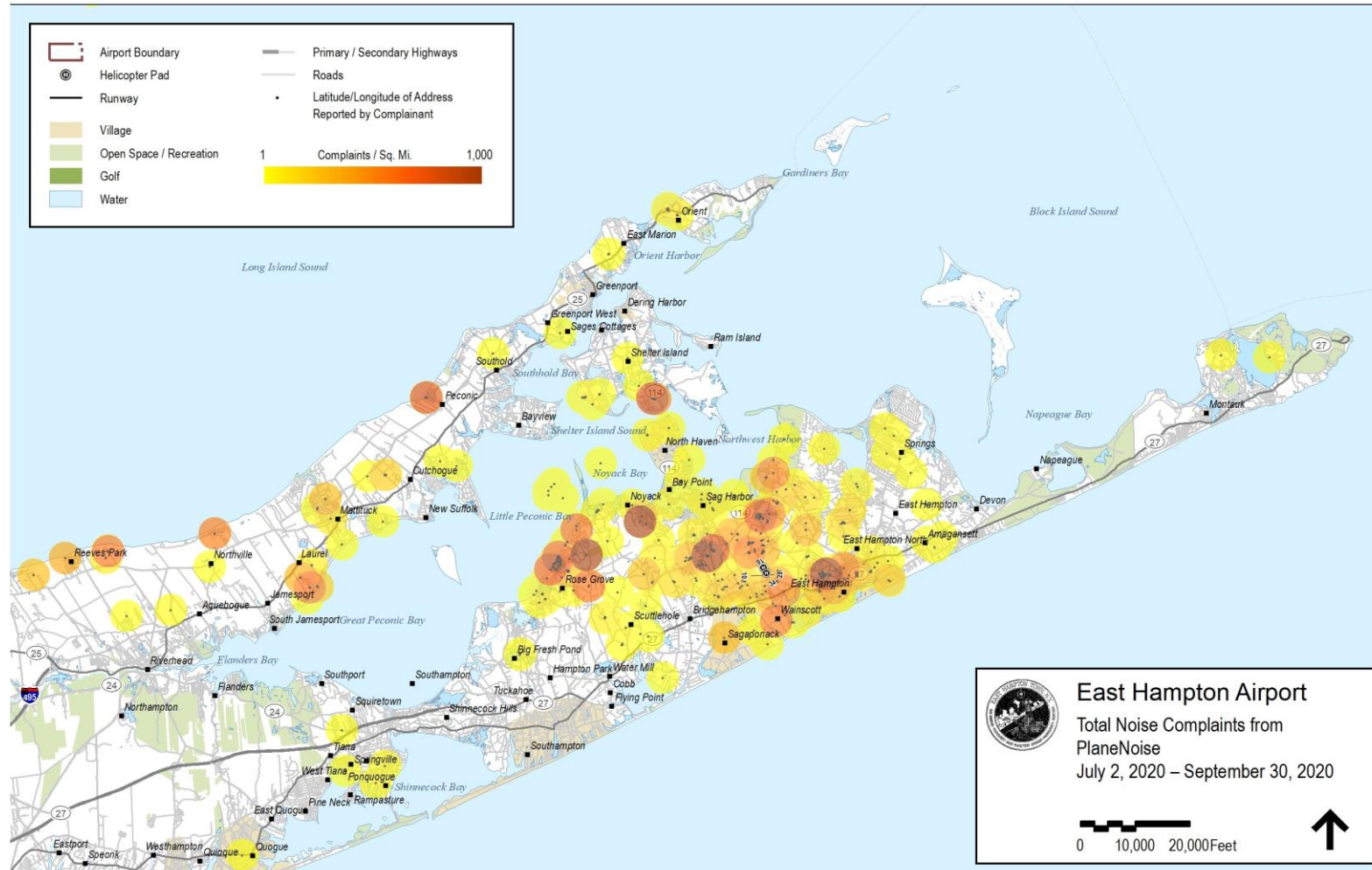


All “Manual” Complaints from Air Noise Report July 2 - September 30, 2020 (2,775 Complaints)

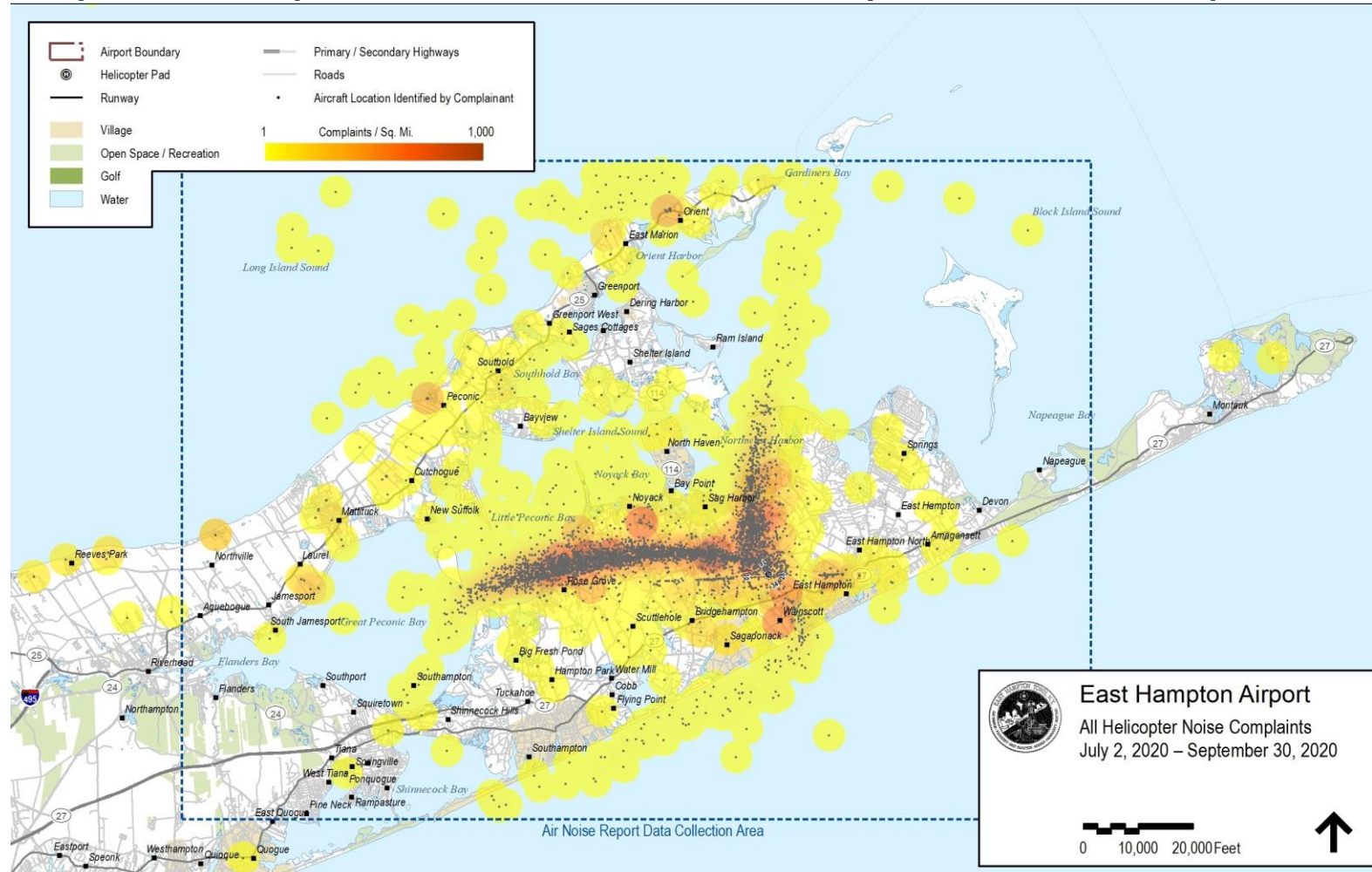


All Complaints from PlaneNoise

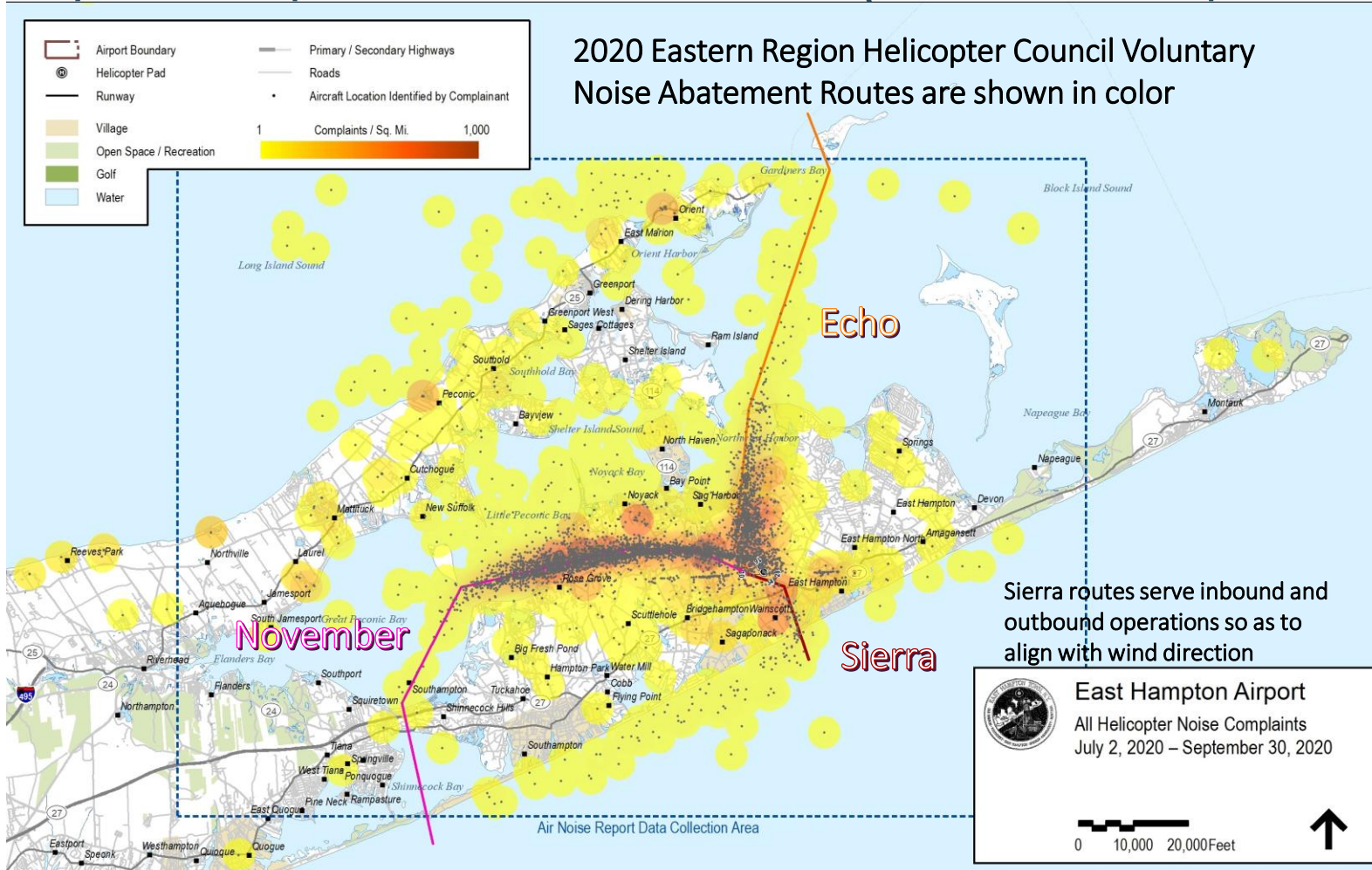
July 2 - September 30, 2020 (15,456 Complaints)



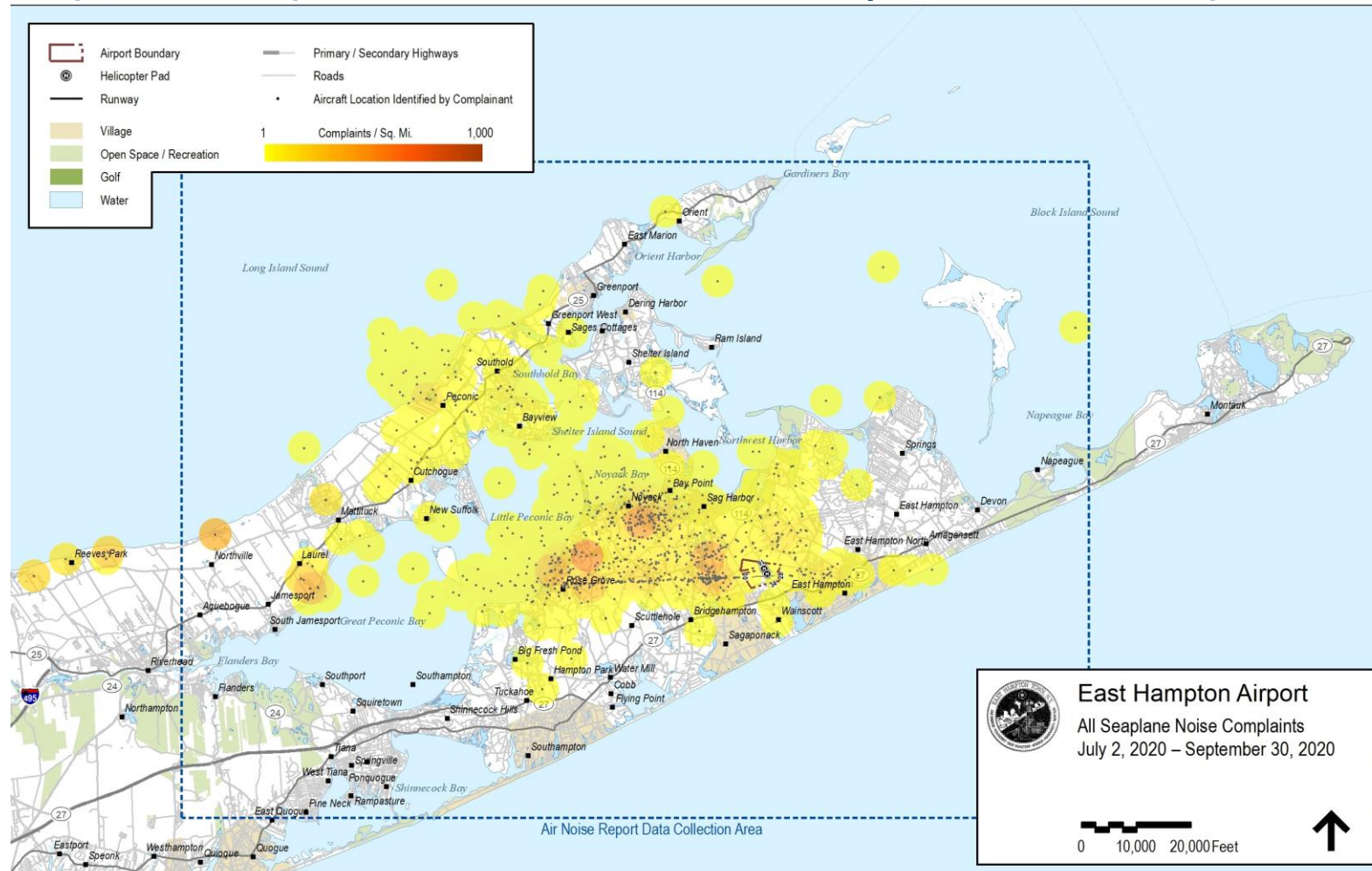
All Helicopter Complaints from PlaneNoise and Air Noise Report July 2 - September 30, 2020 (9,894 complaints)



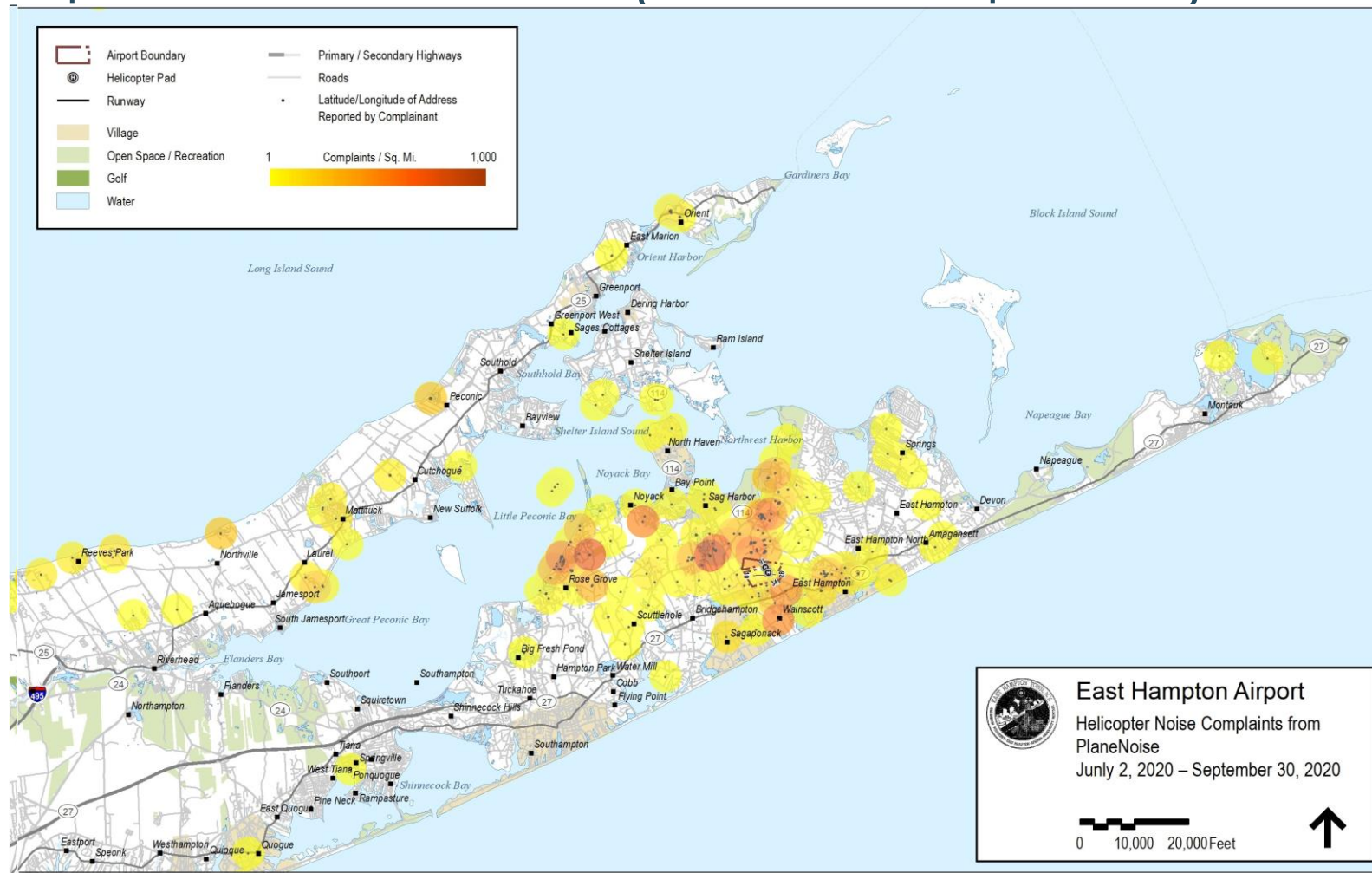
All Helicopter Complaints from PlaneNoise and Air Noise Report July 2 - September 30, 2020 (9,894 complaints)



All Seaplane Complaints from PlaneNoise and Air Noise Report July 2 - September 30, 2020 (1,967 complaints)

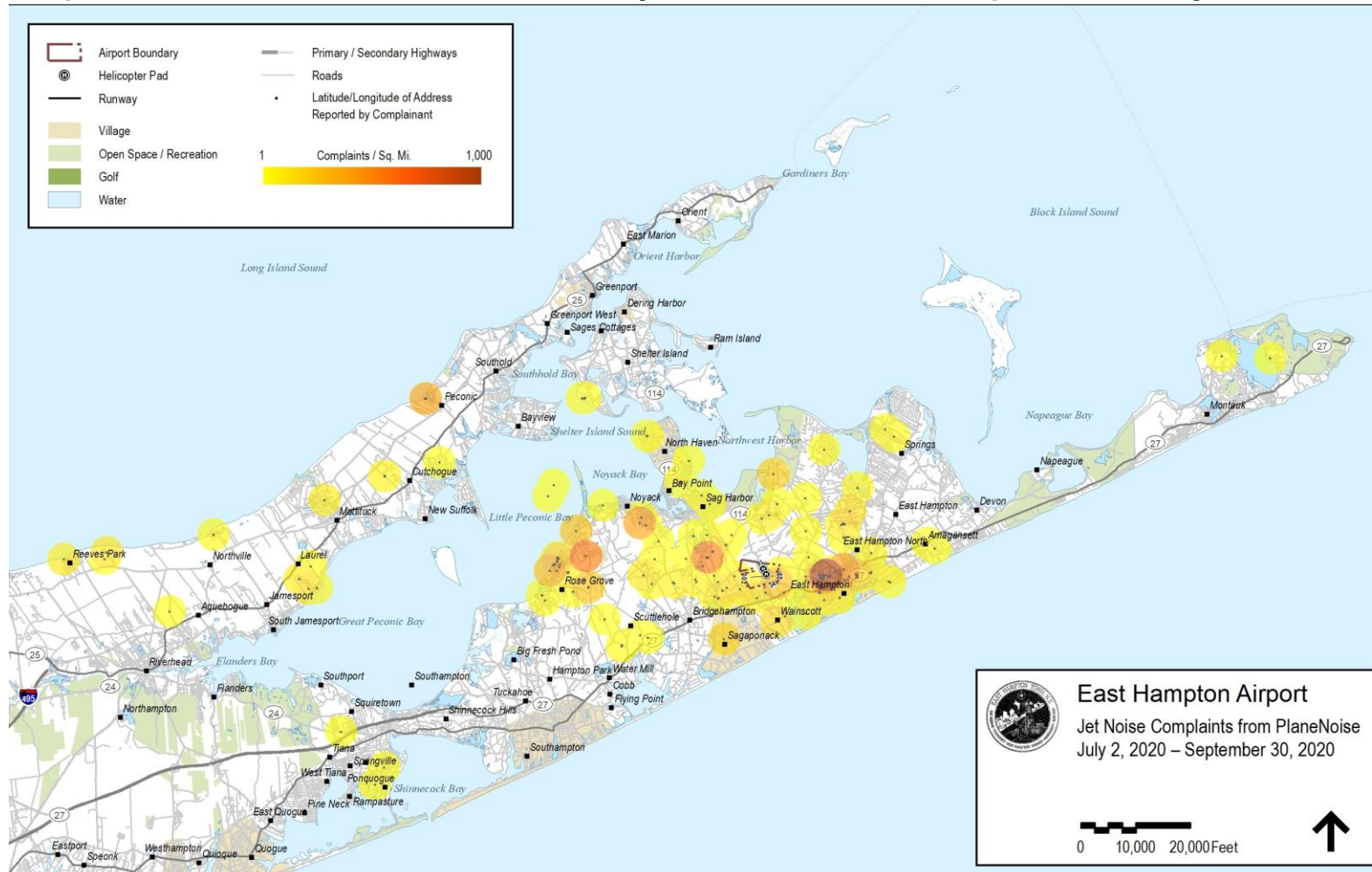


Helicopter Complaints from PlaneNoise July 2 - September 30, 2020 (4,459 Complaints)



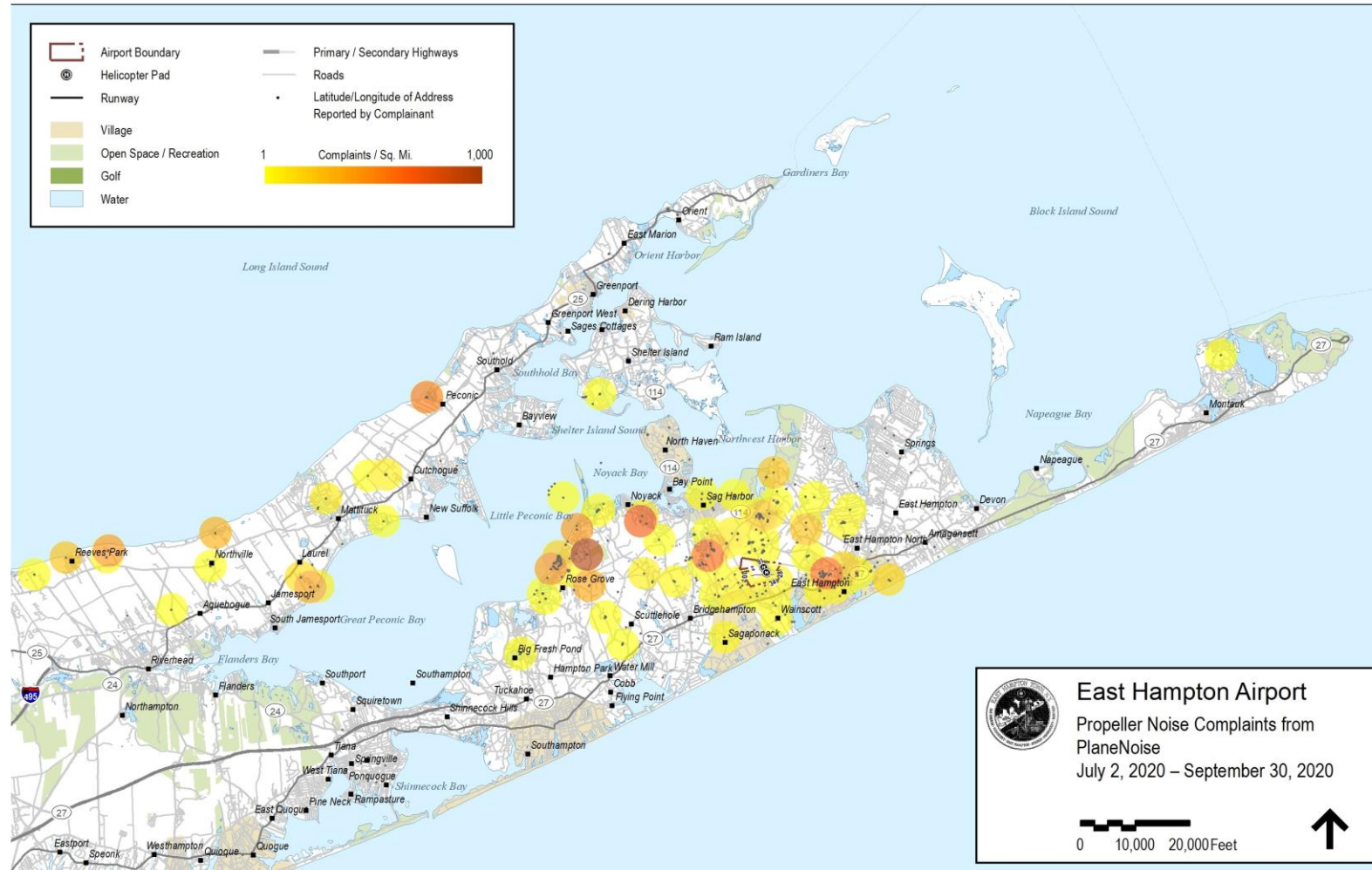
Jet Complaints from PlaneNoise

July 2 - September 30, 2020 (4,425 Complaints)

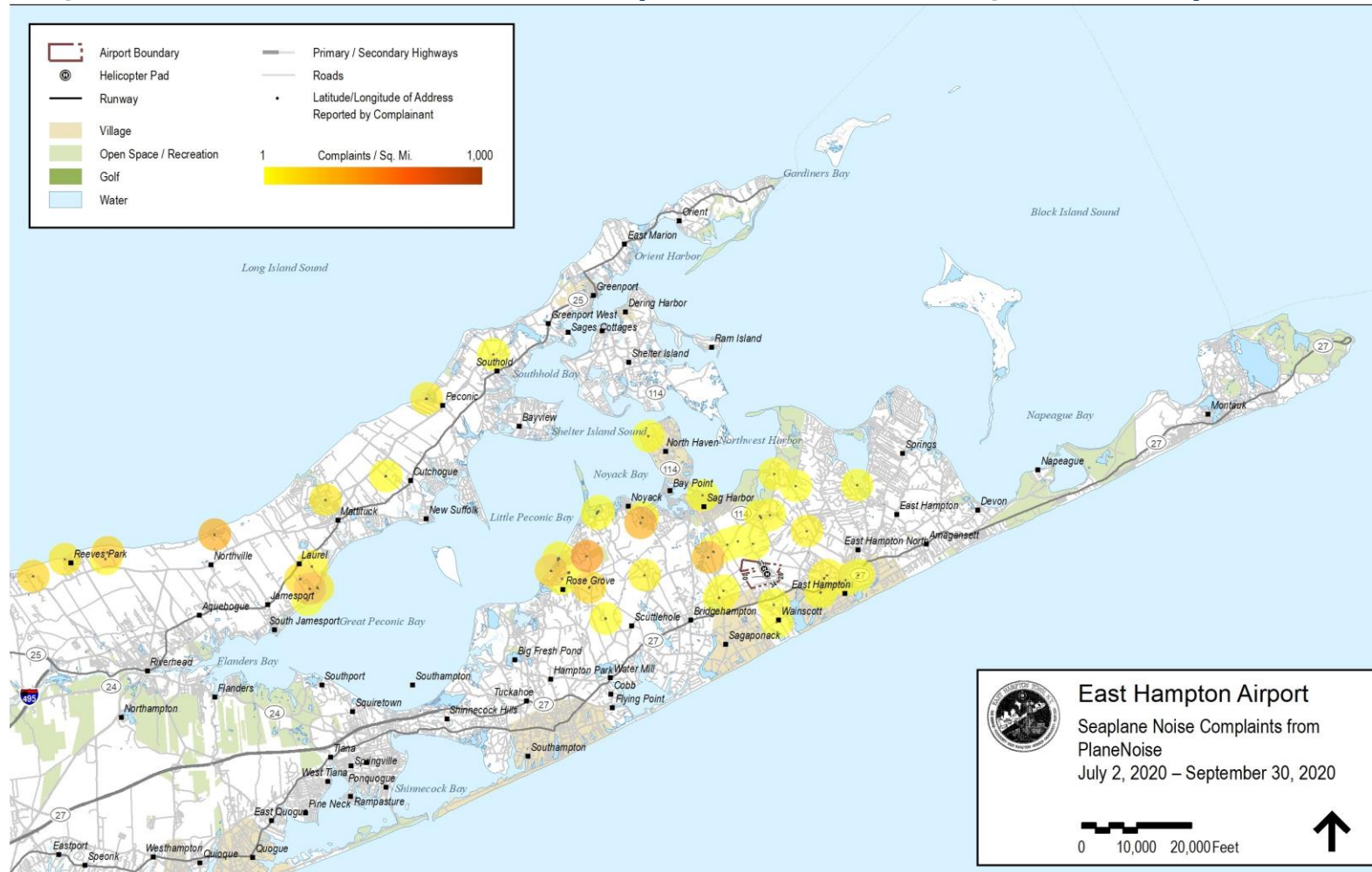


Propeller Complaints from PlaneNoise

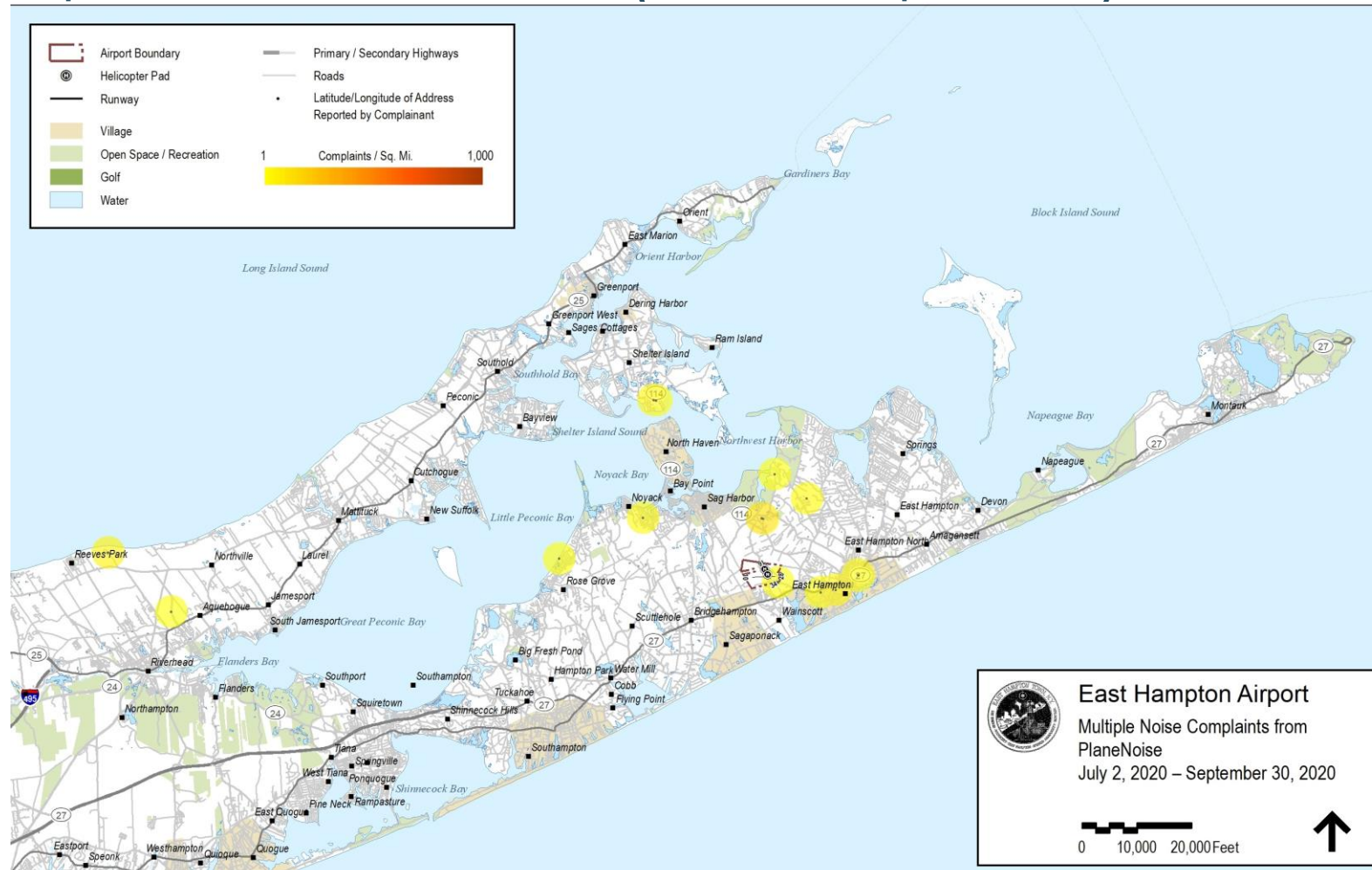
July 2 - September 30, 2020 (4,110 Complaints)



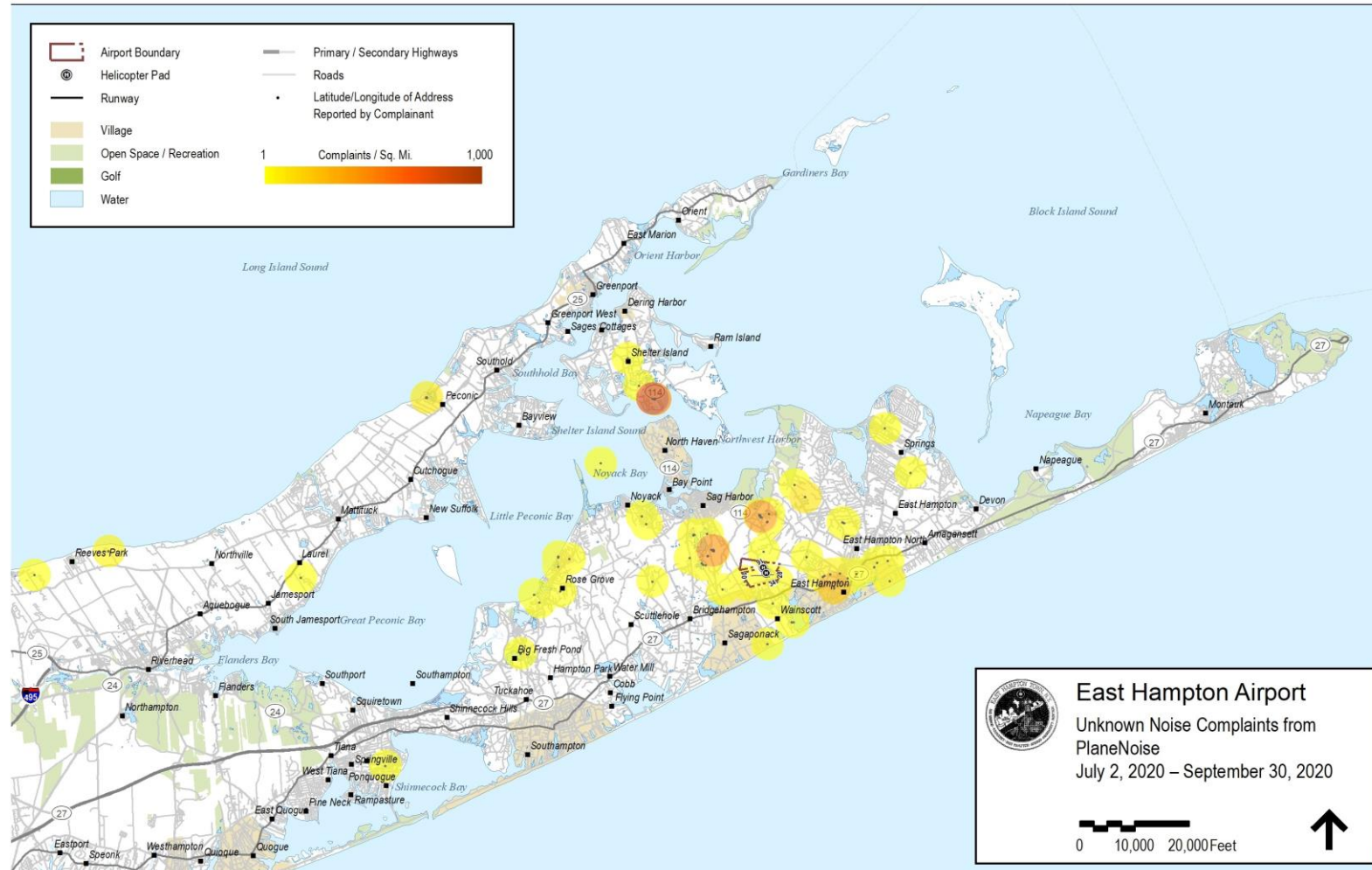
Seaplane Complaints from PlaneNoise July 2 - September 30, 2020 (1,094 Complaints)



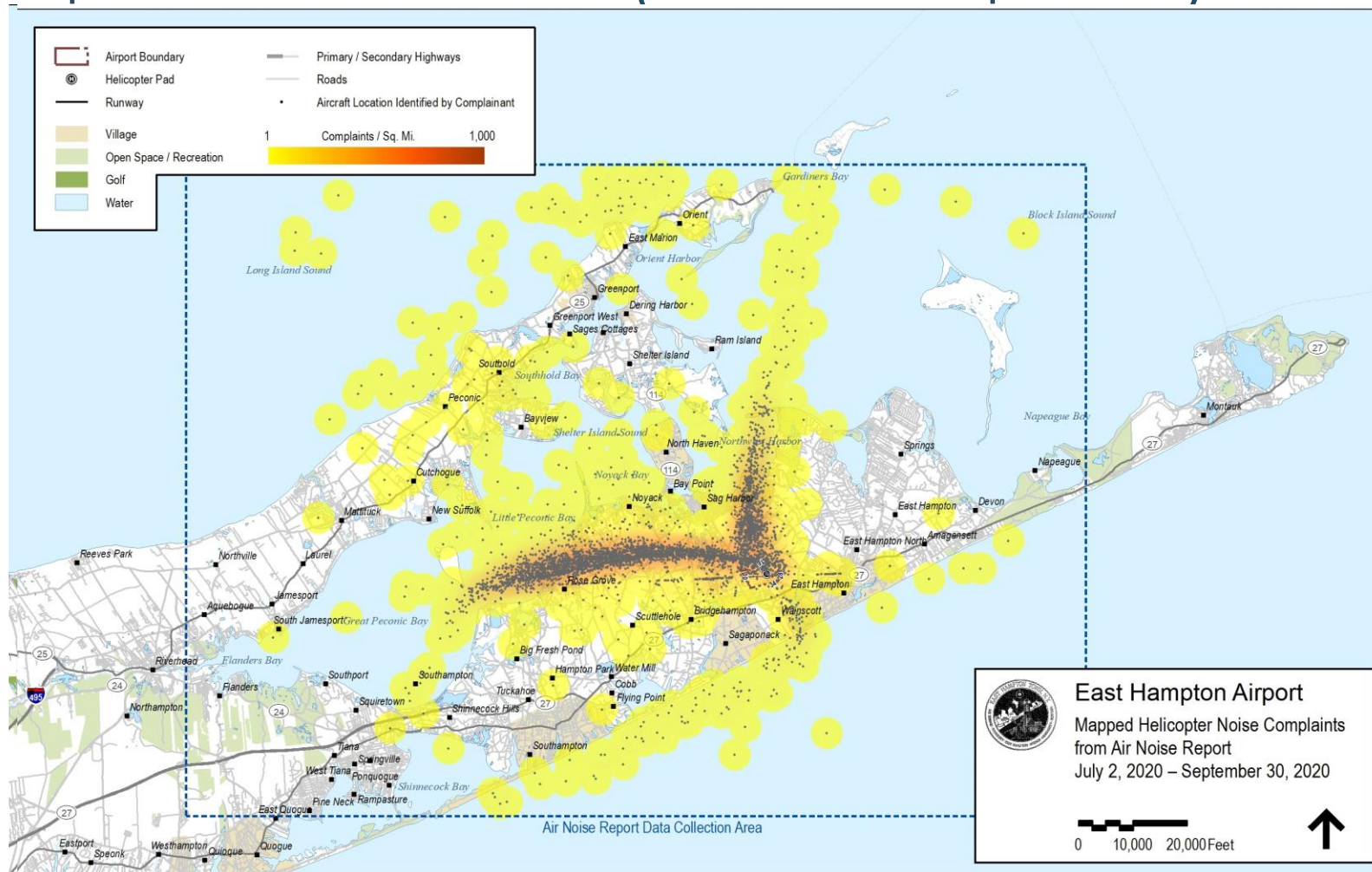
Multiple Aircraft Complaints from PlaneNoise July 2 - September 30, 2020 (80 Complaints)



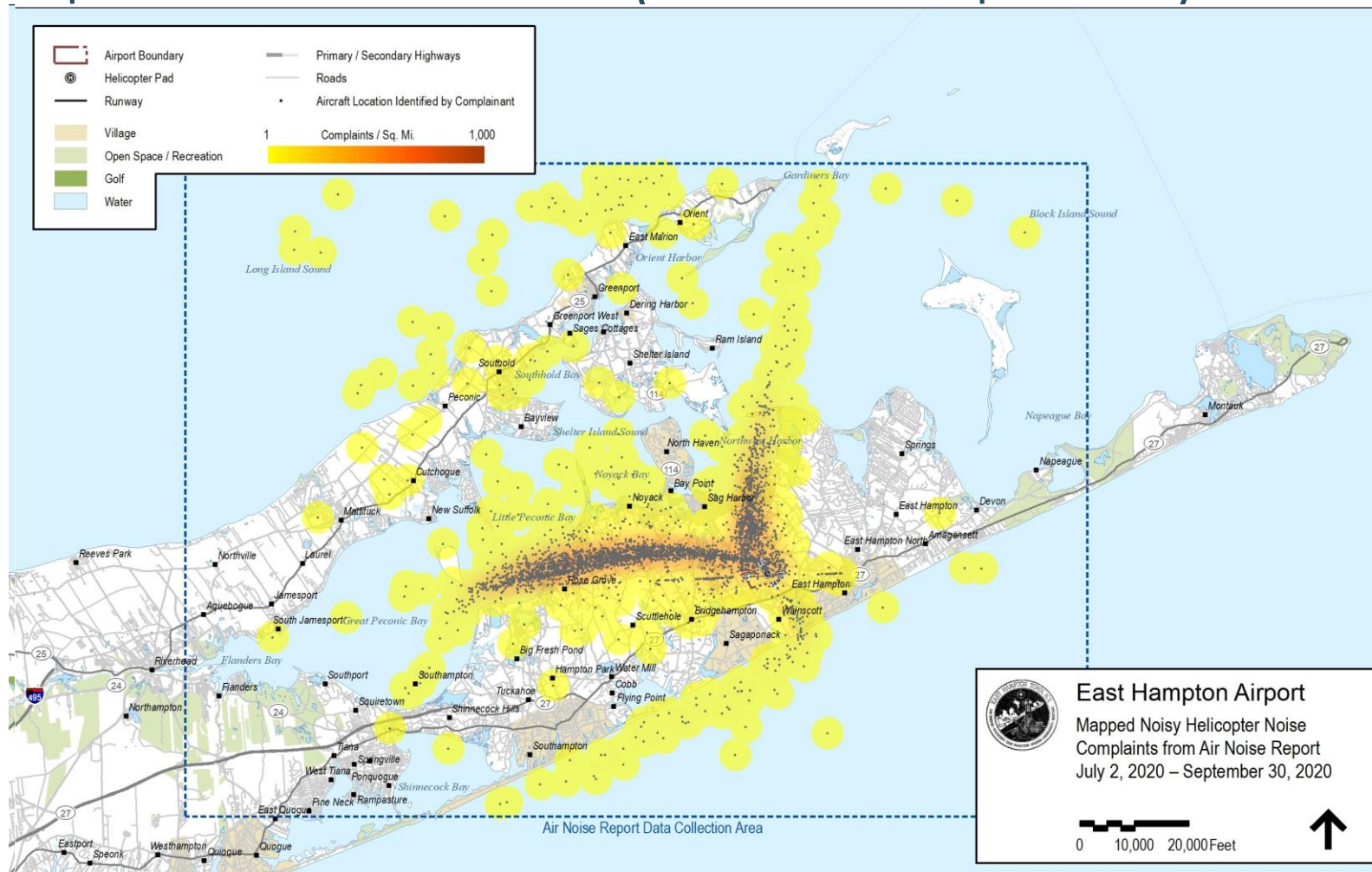
Unknown Aircraft Complaints from PlaneNoise July 2 - September 30, 2020 (1,288 Complaints)



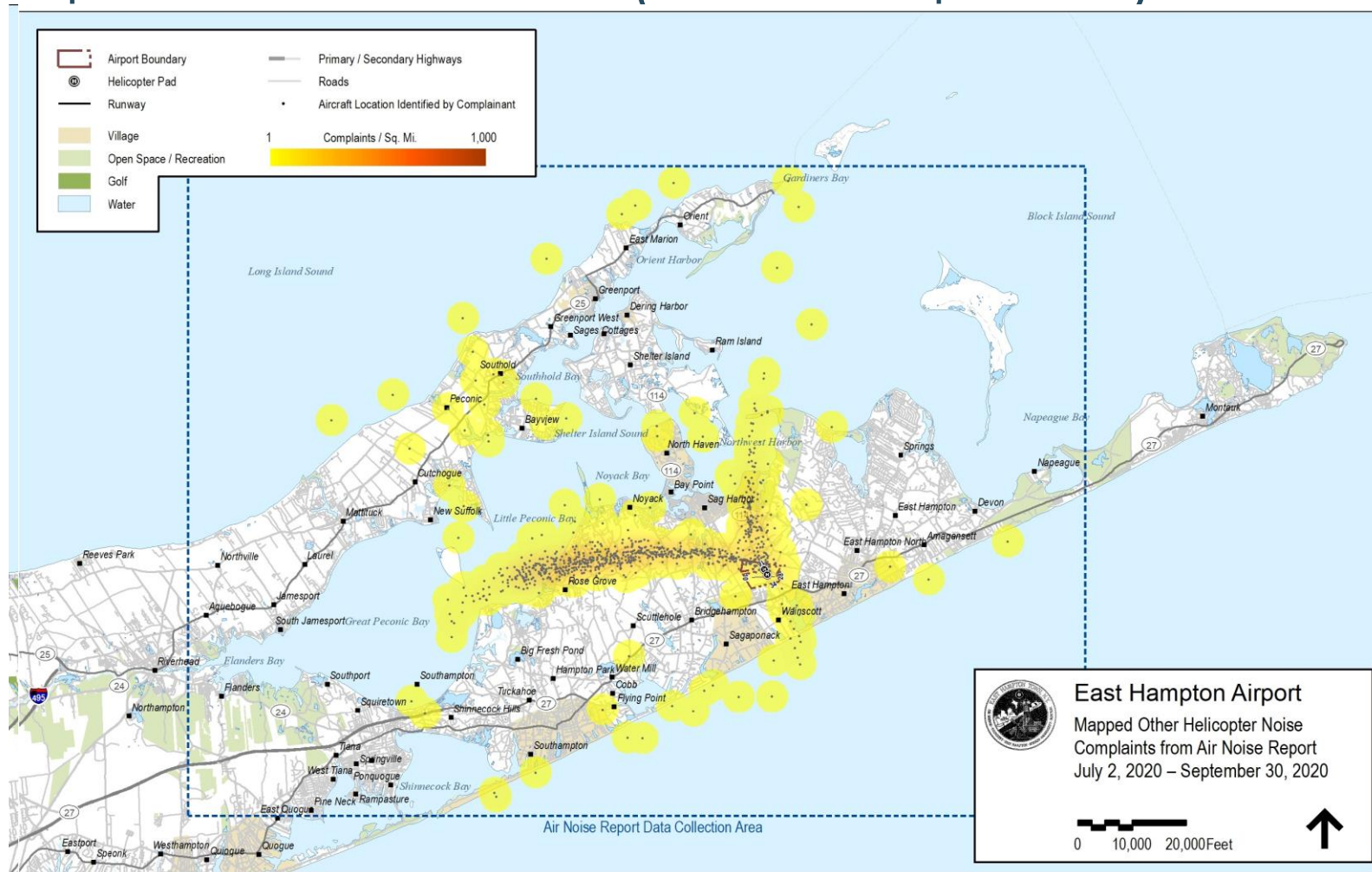
Mapped Helicopter Complaints from Air Noise Report July 2 - September 30, 2020 (4,406 Complaints)



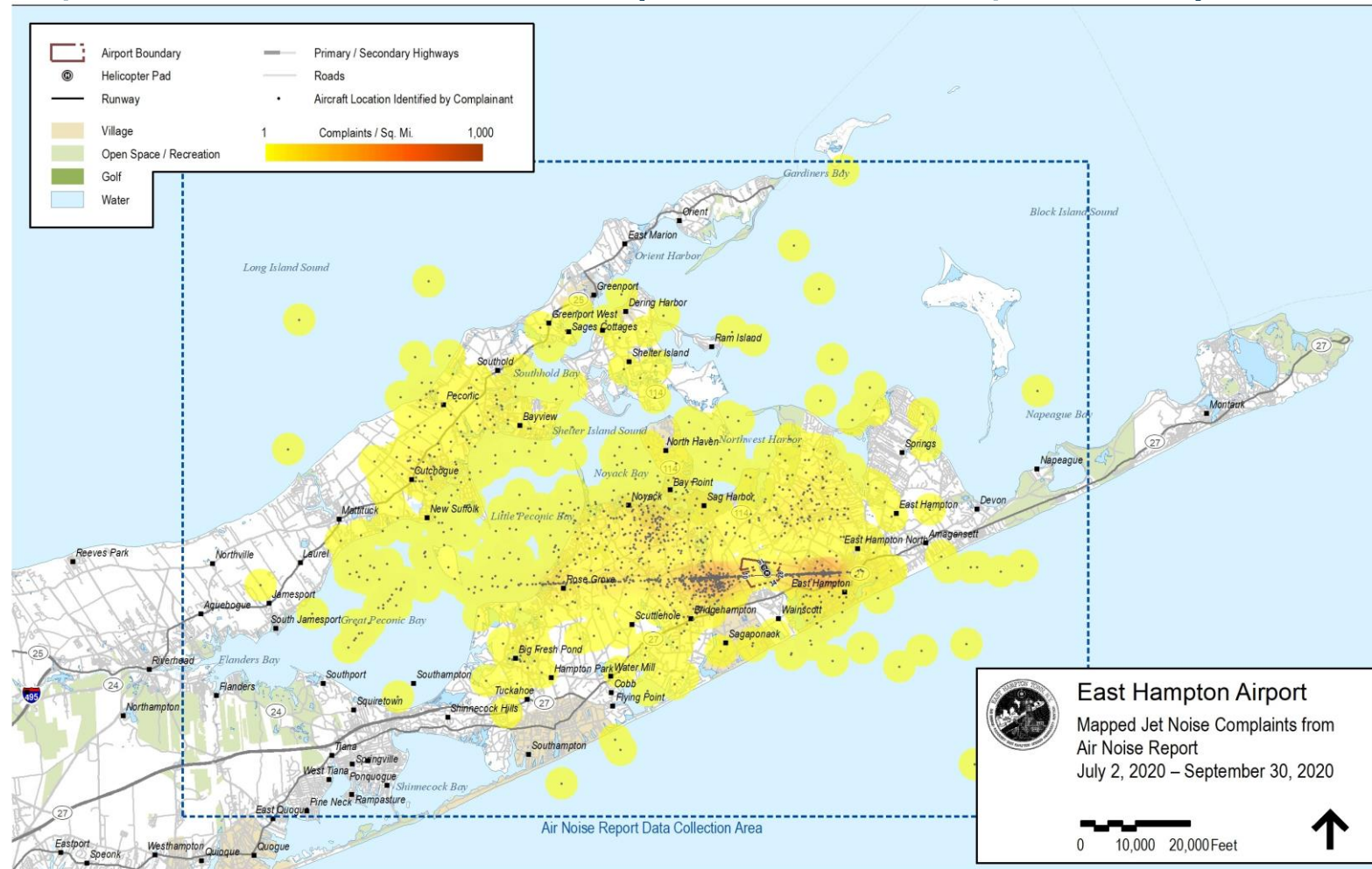
Mapped “Noisy” Helicopter Complaints from Air Noise Report July 2 - September 30, 2020 (3,539 complaints)



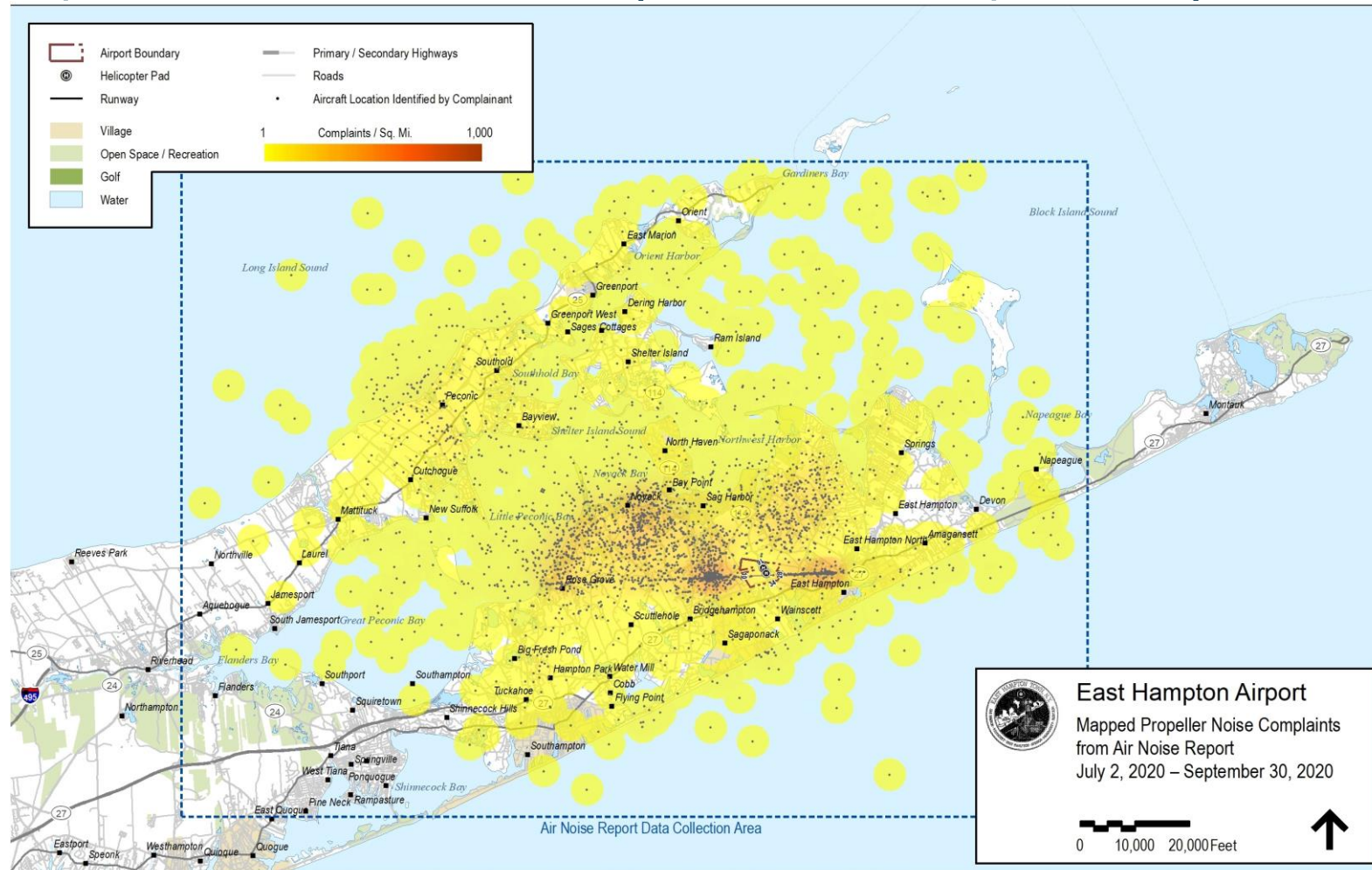
Mapped “Other” Helicopter Complaints from Air Noise Report July 2 - September 30, 2020 (867 Complaints)



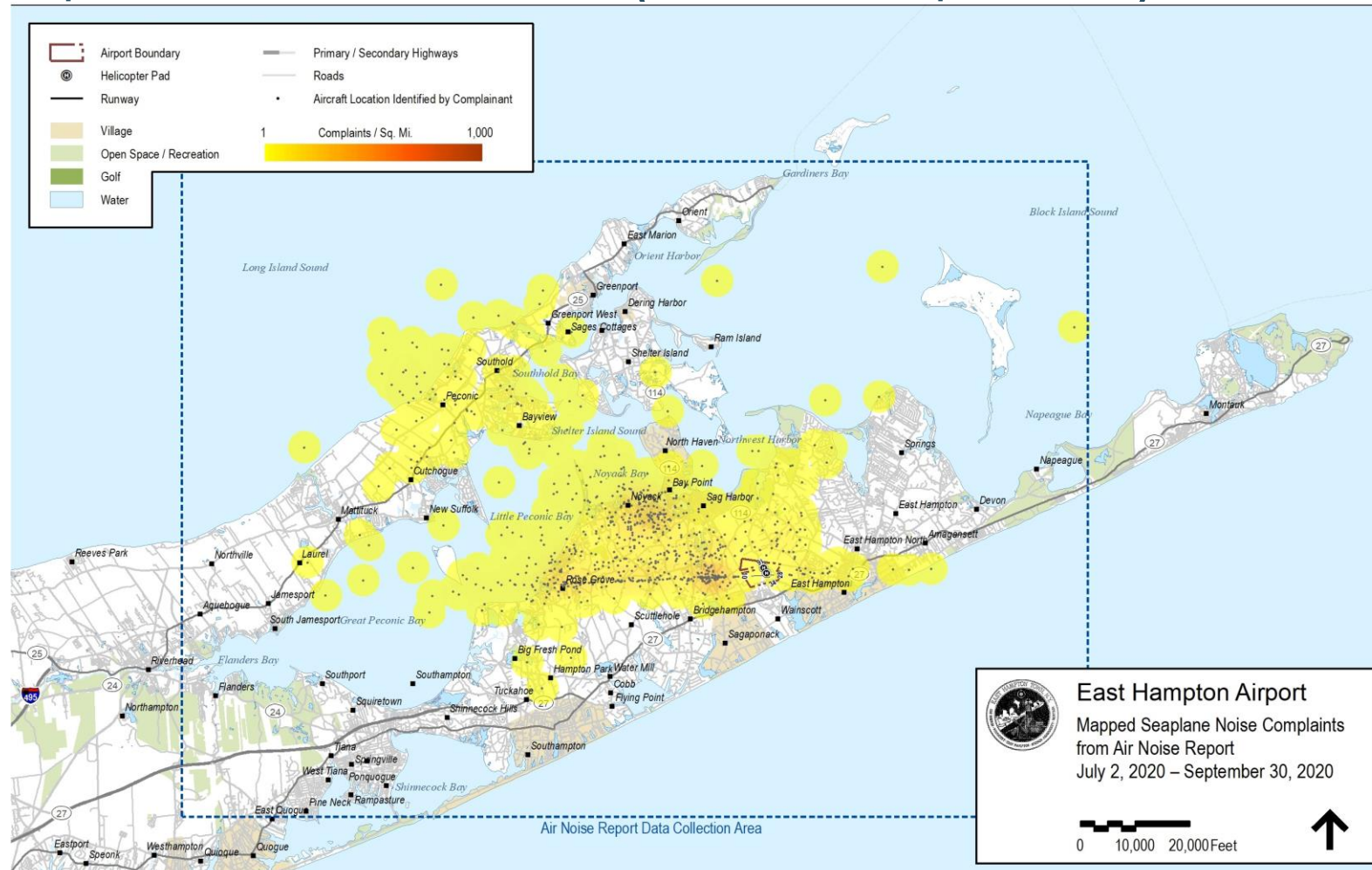
Mapped Jet Complaints from Air Noise Report July 2 - September 30, 2020 (1,414 Complaints)



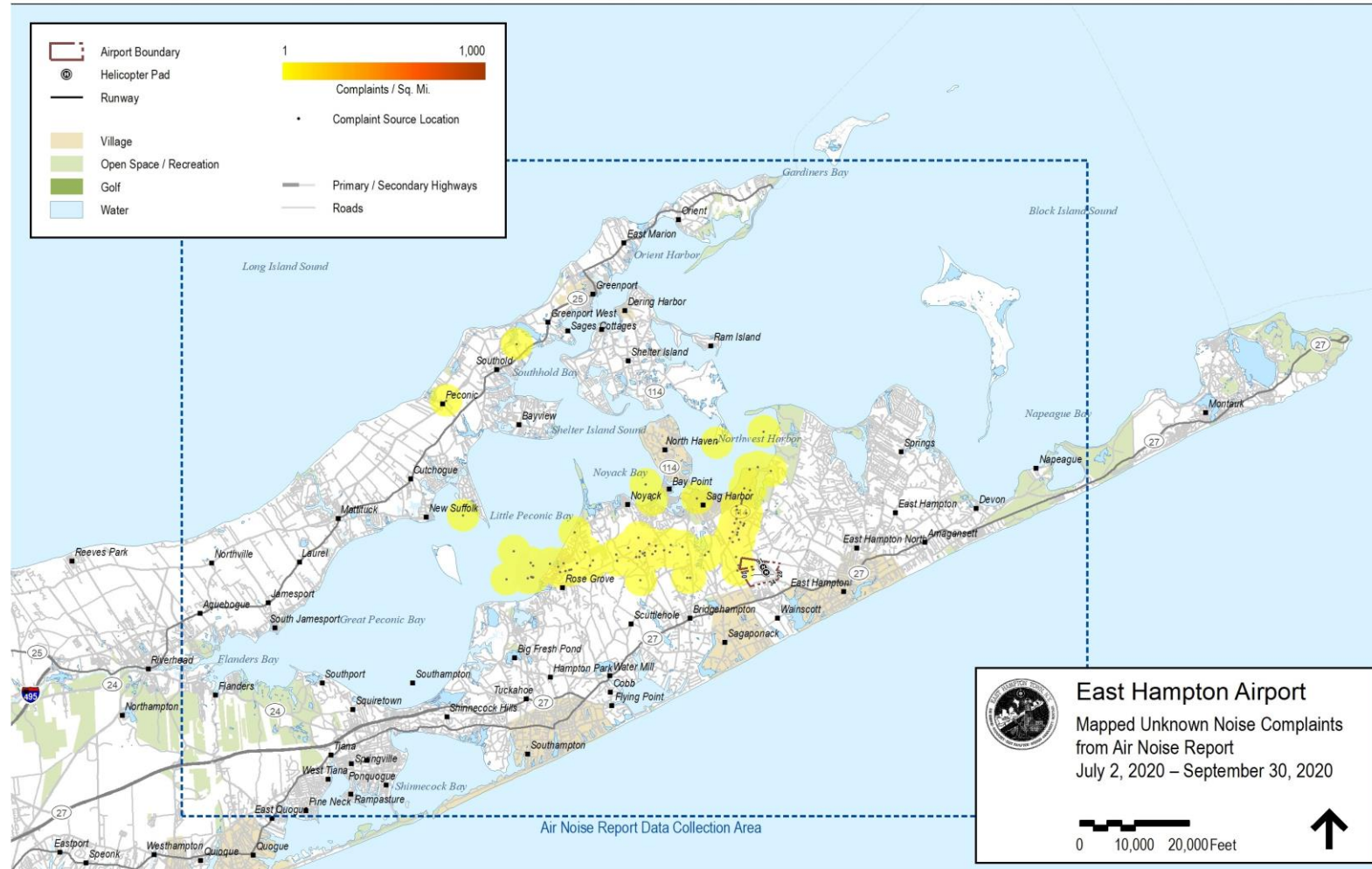
Mapped Propeller Aircraft Complaints from Air Noise Report July 2 - September 30, 2020 (2,879 Complaints)



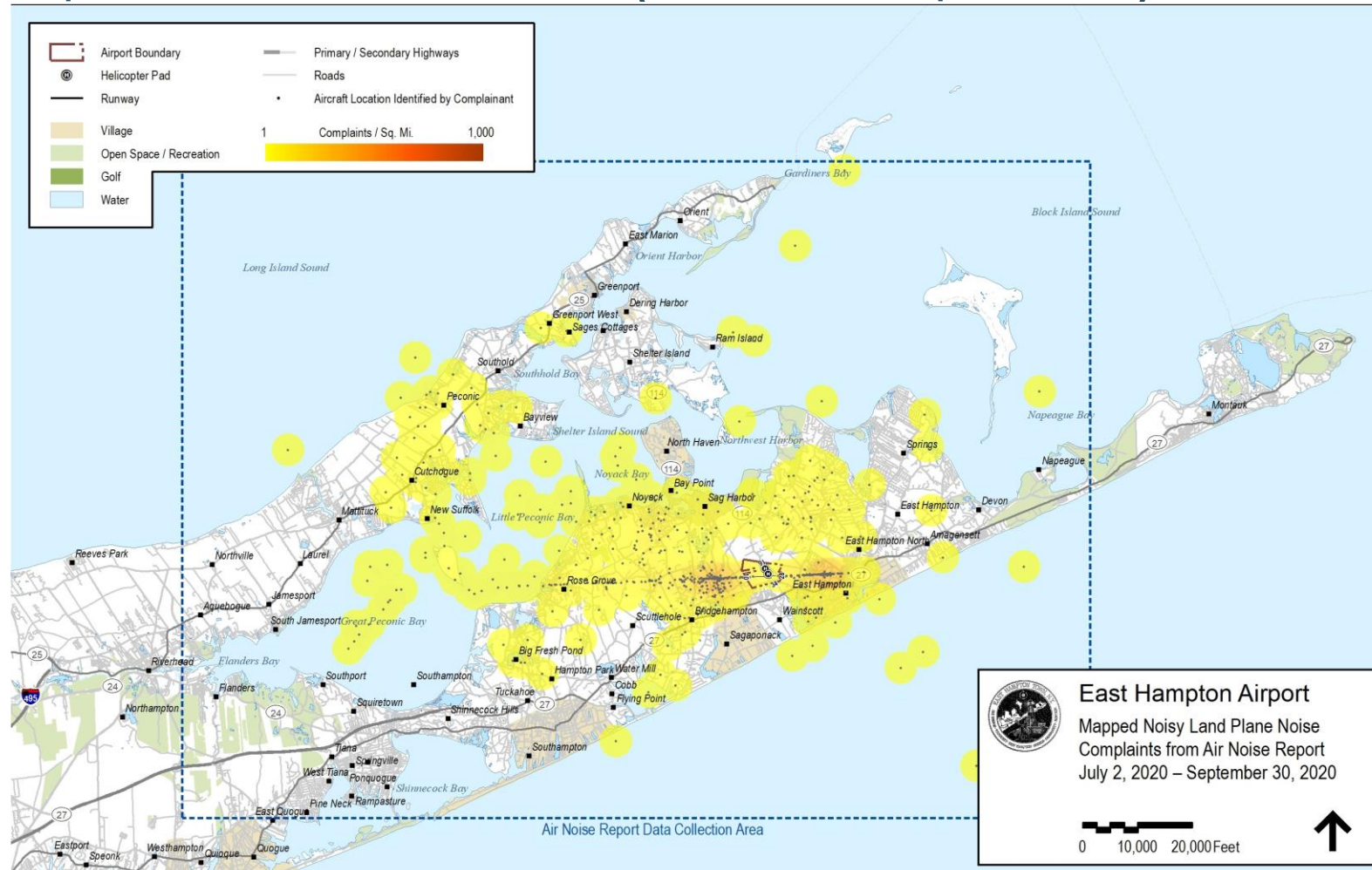
Mapped Seaplane Complaints from Air Noise Report July 2 - September 30, 2020 (827 Complaints)



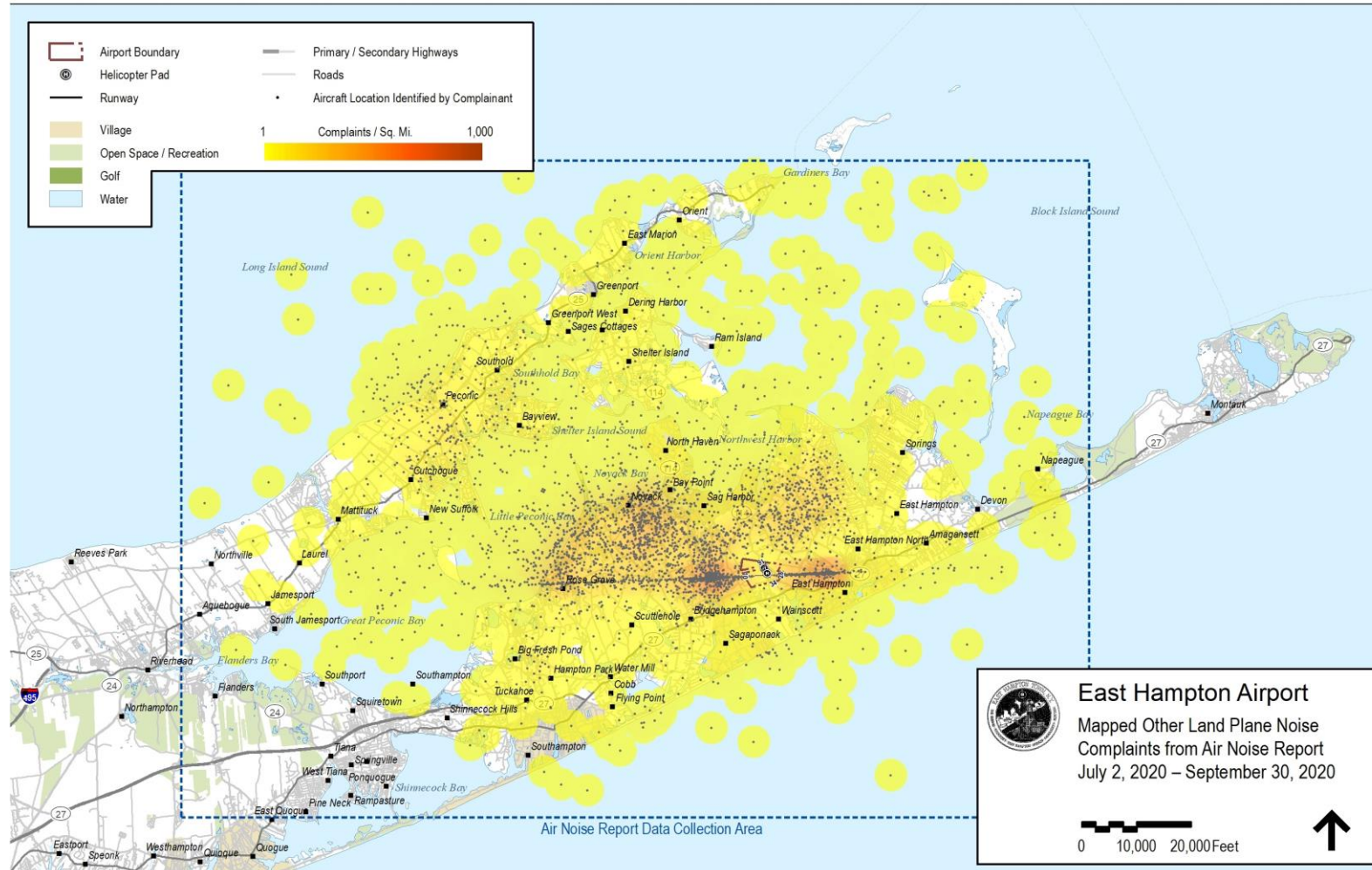
Mapped Unknown Aircraft Complaints from Air Noise Report July 2 - September 30, 2020 (81 Complaints)



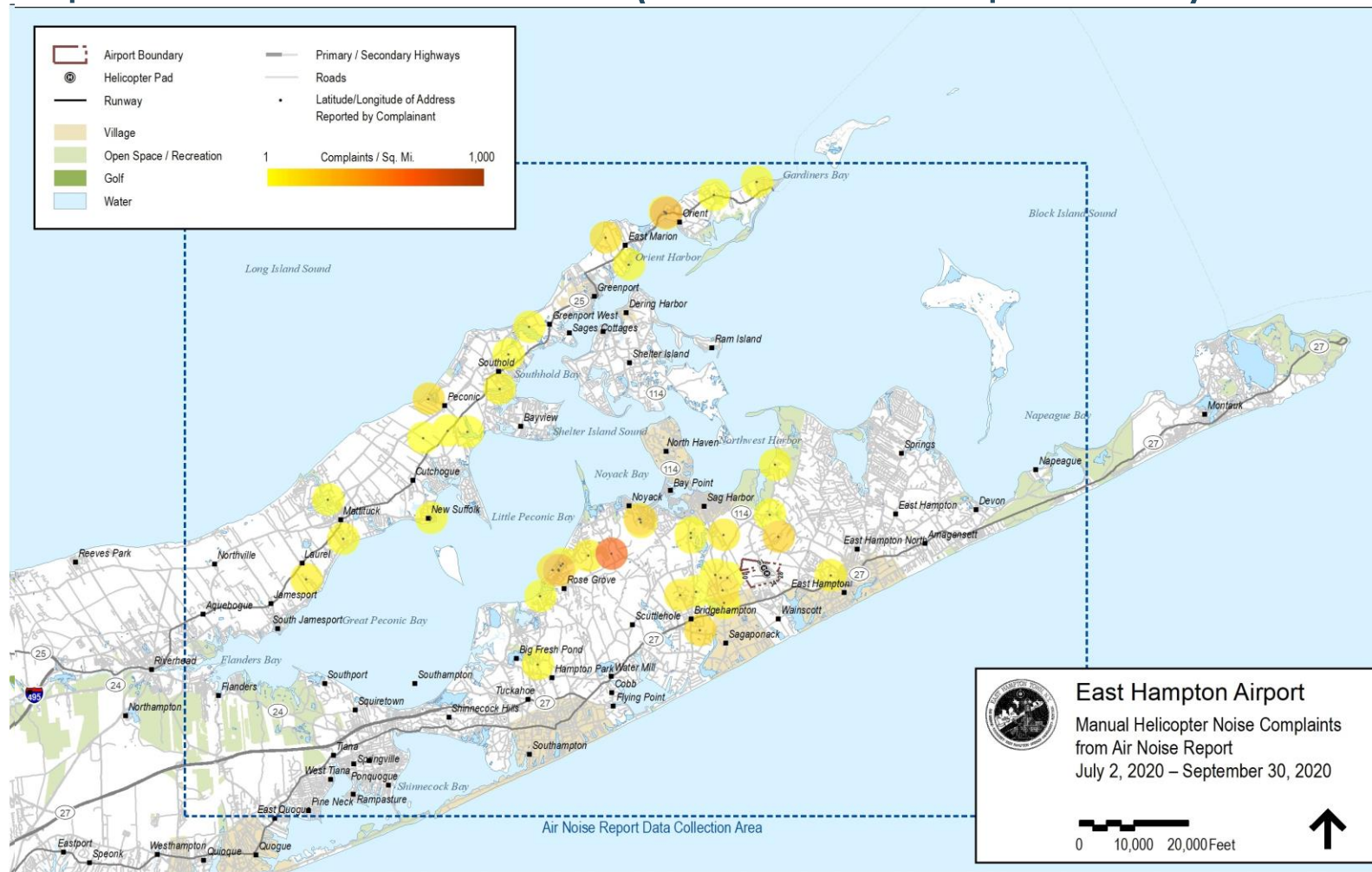
Mapped “Noisy” Land Plane Complaints from Air Noise Report July 2 - September 30, 2020 (572 Complaints)



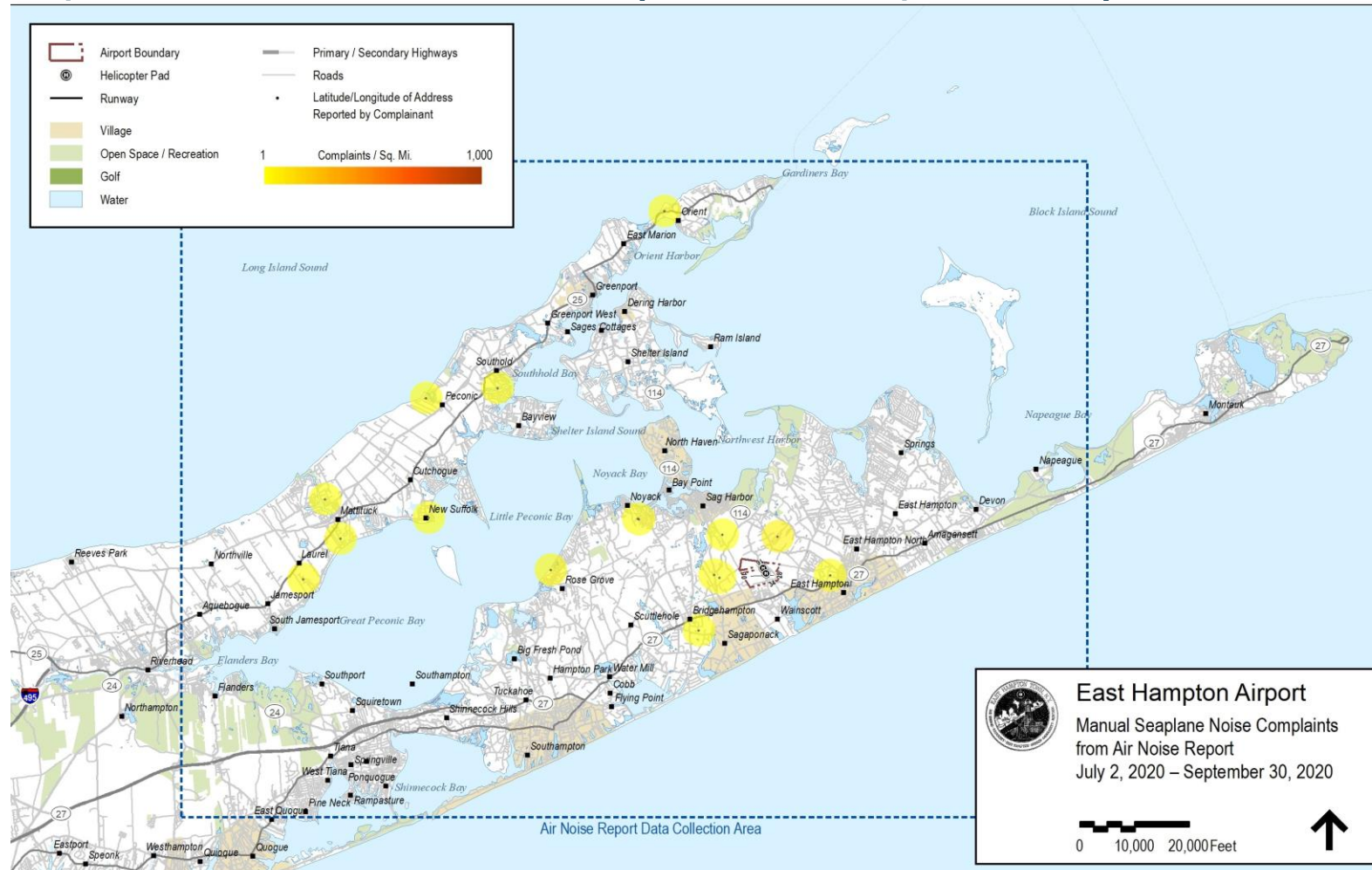
Mapped Other Land Plane Complaints from Air Noise Report July 2 - September 30, 2020 (3,802 Complaints)



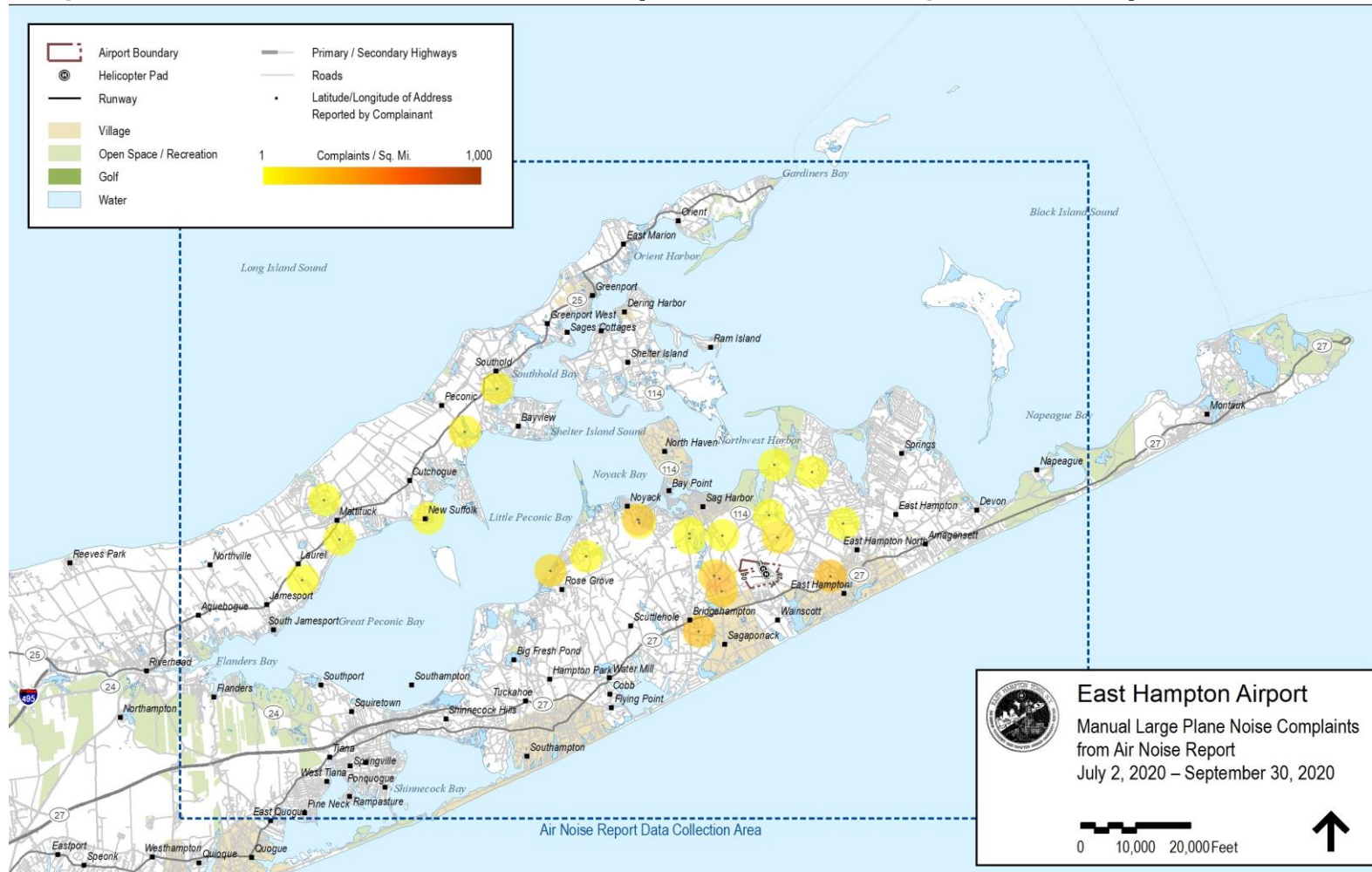
Manual Helicopter Complaints from Air Noise Report July 2 - September 30, 2020 (1,029 Complaints)



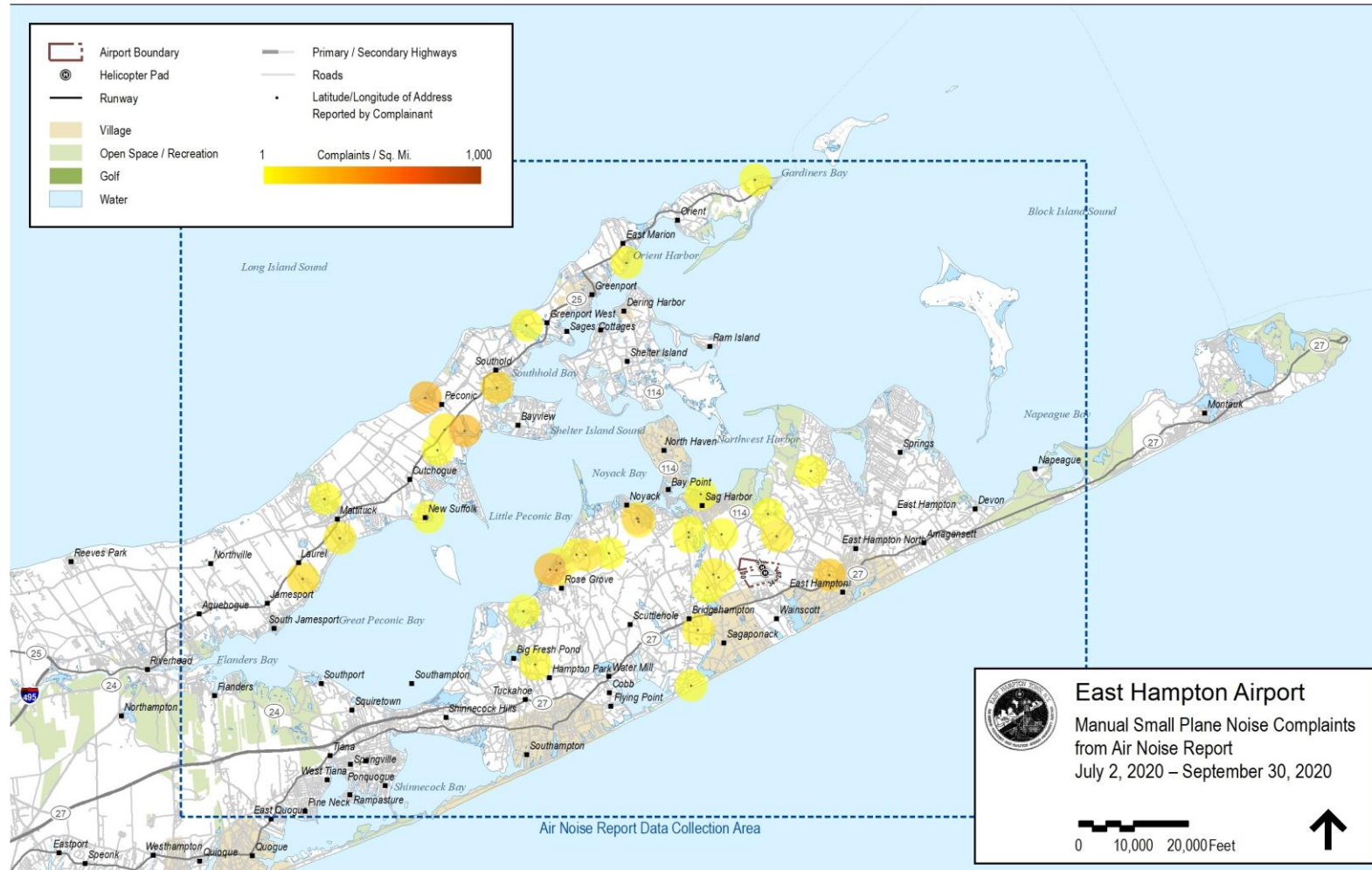
Manual Seaplane Complaints from Air Noise Report July 2 - September 30, 2020 (46 Complaints)



Manual Large Plane Complaints from Air Noise Report July 2 - September 30, 2020 (497 complaints)



Manual Small Plane Complaints from Air Noise Report July 2 - September 30, 2020 (688 Complaints)



Manual Unsure Aircraft Complaints from Air Noise Report July 2 - September 30, 2020 (515 Complaints)

